SIXTH FIVE-YEAR REVIEW REPORT FOR PRISTINE, INC. SUPERFUND SITE HAMILTON COUNTY, OHIO

Prepared by

U.S. Environmental Protection Agency
Region 5
Chicago, Illinois

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Douglas Ballotti, Director
Superfund & Emergency Management Division
Signed by: DOUGLAS BALLOTTI

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LIST OF ABBREVIATIONS & ACRONYMS

1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
1,1-DCE	1,1-Dichloroethene
1,4-D	1,4-Dioxane
1,1,1-TCA	1,1,1-Trichloroethane
AMSL	Above Mean Sea Level
ARAR	Applicable or Relevant and Appropriate Requirement
BAT	Best Available Treatment Technology
CIC	Community Involvement Coordinator
CD	Consent Decree
CDS	Cincinnati Drum Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Cis-1,2-DCE	Cis-1,2-Dichloroethene
CSM	Conceptual Site Model
DDT	Dichloro-diphenyl-trichloroethane
EC	Environmental Covenant
ELCR	Excess Lifetime Cancer Risk
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
FYR	Five-Year Review
GE	General Electric
GHD	Gutteridge, Haskin, and Davey
GPM	Gallons Per Minute
ICs	Institutional Controls
ISVE	In-situ Soil Vapor Extraction System
LA	Lower Aquifer
LOL	Lower Outwash Lens (portion of Upper Aquifer)
MCL	Maximum Contaminant Level
MNA	Monitored Natural Attenuation
MOL	Middle Outwash Lens (portion of Upper Aquifer)
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
Ng/L	Nanograms per Liter
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PCOR	Preliminary Closeout Report
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid

PFOS	Perfluorooctane Sulfonate
PRP	Potentially Responsible Party
RAO	Remedial Action Objective
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
SSPA	S.S. Papadopulos and Associates
SVOC	Semi-volatile Organic Compound
TCE	Trichloroethene
UA	Upper Aquifer
ug/kg	Micrograms per Kilogram
ug/L	Micrograms per Liter
UOL	Upper Outwash Lens (portion of Upper Aquifer)
UU/UE	Unlimited Use and Unrestricted Exposure
VC	Vinyl Chloride
VI	Vapor Intrusion
VISL	Vapor Intrusion Screening Levels
VOC	Volatile Organic Compounds

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 CFR Section 300.430(f)(4)(ii)) and considering EPA policy.

This is the sixth FYR for the Pristine, Inc. Superfund Site (Site or Pristine Site). The triggering action for this statutory review is the completion date of the 5th FYR on 8/4/2016. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of a single operable unit (OU) encompassing the entire Site property and includes the groundwater contaminant plume extending over a mile beyond the property boundary. The Pristine Superfund Site FYR was led by Judy Canova, EPA Region 5 Remedial Project Manager (RPM). Participants included Scott Glum, Ohio Environmental Protection Agency (OEPA), David Wilson, EPA Region 5 Senior Hydrogeologist, Adrian Palomeque, EPA Region 5 Community Involvement Coordinator (CIC), Matt Tonkin, S.S. Papadopulos & Associates (SSPA) Geological Services contract support, and Erica Difilippo, SSPA. The Pristine potentially responsible party group (PRP or Pristine Trust) was notified in advance of the initiation of the five-year review. The review began on 8/4/2020.

Site Background

The Site was used for manufacturing of sulfuric acid and fertilizer prior to 1974 when Pristine, Inc. began operations at the facility. From 1974-1977, Pristine, Inc. used the facility solely for liquid waste disposal. In 1977, Pristine, Inc. obtained a permit to incinerate liquid waste on-Site and accepted bulk and liquid waste until 1981 when the Site was closed due to numerous permit violations. More than 10,000 drums and several hundred thousand gallons of bulk liquids were on-Site at the time of closure.

The Pristine Site encompasses approximately three acres within the City of Reading, Hamilton County, Ohio (Figure 1, Appendix B). The Site is located adjacent to Mill Creek which drains into the Ohio River. Groundwater at the Site occurs in the Mill Creek bedrock valley glacial deposit aquifers including an uppermost aquifer consisting of interbedded lenses of sand, gravel, and clay and a lower sand and gravel aquifer consisting of upper, middle, and lower units. Groundwater contamination is present in the upper and lower aquifers both on the Site property and beyond the Site property boundaries. The Lower Aquifer (LA) is used in the vicinity as a source of municipal drinking water and was formerly used to supply drinking water to the Town of Reading. The Reading Wellfield, adjacent to the Pristine Site, was shut down in March of 1994 as a result of contamination in the LA and is no longer operational. A number of facilities continue to use groundwater from the Mill Creek Valley Aquifer in the region for industrial or drinking purposes.

The Upper Aquifer (UA) is unused, but contamination from the Site has moved through the UA and into the LA. Generally, groundwater flows to the west-southwest in the LA at the Site, and a westward component of flow has been noted in the southwestern portion of the plume. The groundwater flow

direction in the UA is unknown. Mill Creek, approximately 600 feet to the west of the Site, flows from north to south. The creek is not used for drinking or recreation except for occasional fishing.

Current property use near the Site includes industrial immediately adjacent to the Site. Commercial and residential properties overlie the southern portion of the Pristine, Inc. plume. The reasonably anticipated future land use of the Site is industrial, and commercial and residential use is anticipated to continue in areas surrounding the Site. The Cincinnati Drum Service (CDS) property includes the western side of the Site (Figure 2, Appendix B). In the past, drums were recycled at the CDS property, and Pristine, Inc. used a pit on the CDS property to dispose of liquid waste. The pit, which will be discussed in the context of this FYR, is referred to as the "Magic Pit" (Figure 3, Appendix B). OL/JL Legacy LLC owns the 13-acre CDS property which includes the Magic Pit portion of the Pristine Site. The CDS property is currently being leased to various users as a warehouse facility. The Metropolitan Sewer District of Greater Cincinnati uses the land to the north of the Site for a sewage and combined sewage overflow holding and treatment facility. The former Rohm and Haas facility is south of the Site, and it was used to manufacture stabilizers and plasticizers. Investigation and remediation of the Rohm and Haas facility was jointly managed by EPA and OEPA's Resource Conservation and Recovery Act (RCRA) program, and OEPA is currently responsible for oversight of activities at the facility. A grain elevator is present east of the Southwest Ohio Regional Transit railroad tracks to the east of the Site. Several other industries are present in the Mill Creek Valley including General Electric (GE) which manufactures aircraft engines. GE is under an EPA RCRA order for investigation and remediation of contaminated groundwater. Residential properties overlying the LA plume are present approximately ½ mile to the southwest of the Pristine property. The Ports Authority is working to redevelop property in the area. In the next few years, use of the Pristine, Inc. property as a parking facility may be proposed as part of the overall redevelopment plan.

In September 1983, the Site was added to the National Priorities List (NPL).

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Pristine, Inc.		
EPA ID: OHD076773712		
Region: 5	**State:** OH	**City/County:** Reading/Hamilton
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name: Judy Canova, RPM		
Author affiliation: EPA Region 5		

Review period: 8/4/2020 - 4/5/2021
Date of site inspection: 12/4/2020
Type of review: Statutory
Review number: 6
Triggering action date: 8/4/2016
Due date *(five years after triggering action date)*: 8/4/2021

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

EPA began a Remedial Investigation/Feasibility Study (RI/FS) in 1984 (EPA, 1984) to define the nature and extent of the contamination at the Site, to determine threats to human health and the environment, and to identify and evaluate remedial alternatives. The RI included sampling and analysis of soil, incineration residue, sediment, surface water, and groundwater. The sampling results showed that the surface and subsurface soils and groundwater were highly contaminated, and the potential human health risk from contact with contaminated soils and groundwater was unacceptable. The Reading municipal water supply system was at risk of impact from groundwater contamination emanating from the Pristine Site. A supplemental Remedial Investigation was completed in 1987 (EPA, 1987).

Contaminants of concern for soil have included polychlorinated biphenyl (PCB) compounds; pesticides including dichloro-diphenyl-trichloroethane (DDT), aldrin, and dieldrin; volatile organic compounds (VOCs) such as 1,2-dichloroethane (1,2-DCA), methylene chloride, chloroform, benzene, vinyl chloride, tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1,1-trichloroethane (1,1,1-TCA); semi-volatile organic compounds (SVOCs) such as polynuclear aromatic hydrocarbons (PAHs), phenol, and bis (2-ethylhexyl)phthalate; metals such as cadmium, lead, and mercury; and dioxins. Groundwater contaminants of concern have included aldrin, arsenic, benzene, benzo(a)pyrene (BaP), chloroform, DDT, 1,2-DCA, cis-1,2-DCE, dieldrin, 1,4-dioxane (1,4-D), ethylbenzene, pentachlorophenol, PCE, TCE, vinyl chloride (VC), chlorobenzene, 1,2-dichlorobenzene, 1,1-dichloroethene, 1,1,1-TCA, phenol, toluene, barium, beryllium, cadmium, chromium, copper, fluorine, lead, and mercury. VOCs in soil and groundwater present a potential vapor intrusion (VI) concern. Groundwater in the Site vicinity is used as a source of drinking water, although the Reading wellfield discontinued operations in 1994.

Response Actions

1980-1984

From 1980 to 1983, thousands of barrels of drummed wastes were removed under a Consent Decree (CD) between OEPA and Pristine, Inc. In 1984, sludges and highly contaminated soils were removed from the Site under an Administrative Order on Consent between EPA and a group of private parties.

1987 Record of Decision (ROD) (EPA, 1987)

On December 31, 1987, EPA signed a ROD addressing contaminated soil and groundwater for the Site. The remedial action objectives (RAOs) for soil and groundwater were “adequate protection of public

health and environment from inhalation, absorption, or ingestion of hazardous substances" (Page 7). The selected remedy included:

- Excavation and consolidation of 1,725 cubic yards of sediment and soil;
- In-situ vitrification of contaminated soil to an average depth of ten feet across the Site;
- Installation of a French drain along the eastern Site boundary;
- Groundwater extraction from the lower outwash lens in the UA and the entire LA affected by the Site;
- Treatment of groundwater on-Site with an air stripper;
- Discharge of treated groundwater to Mill Creek;
- Decontamination, demolition, and removal of all on-Site structures;
- Institutional controls (ICs); and
- Long-term groundwater monitoring.

1990 ROD Amendment (EPA, 1990)
EPA issued a ROD Amendment on March 30, 1990 to document modification of the soil remedy. The soil component of the ROD Amendment included the following:

- On-Site incineration including the top one foot of soil across Zone A of the Site, selected sediment areas, and all other soils from ground surface to four feet below ground surface which contained pesticides and SVOCs in excess of soil performance goals. The locations of Zone A and B are shown in Figure 3 of Appendix B;
- Placement of incinerator residues under a soil cap covering Zone A if the residues met the substantive RCRA delisting criteria;
- Dewatering the upper 12 feet of Zone A soil and the Magic Pit portion of Zone B to allow In-situ Soil Vapor Extraction (ISVE) of dewatered soil including treatment of extracted water using carbon adsorption;
- ISVE of on-Site soil to a depth of approximately 12 feet below the original ground surface in Zone A and near the Magic Pit in Zone B; and
- Use of an off-gas control system to manage ISVE air emissions.

1993 Explanation of Significant Differences (ESD) (EPA, 1993)
The July 30, 1993 ESD issued by EPA changed the method of thermal treatment for soil from incineration to thermal desorption. The ESD also changed the target soil concentration for individual PAHs in soil to 1,000 micrograms per kilogram (ug/kg) because it was impracticable for the laboratory to detect PAHs at the previous target concentration of 14 ug/kg.

1996 ESD (EPA, 1996)
On April 24, 1996 EPA issued an ESD to waive Ohio anti-degradation requirements for two years for treatment system effluent discharges to Mill Creek for parameters without defined Best Available Treatment Technology (BAT) guidelines. This waiver included phenol and metals.

2011 ESD (EPA, 2011)
EPA executed an ESD on July 1, 2011 eliminating soil cleanup criteria for individual contaminants and establishing a cumulative excess lifetime cancer risk (ELCR) of 10^{-5} and a Hazard Index of 1 for human exposure to soil based on a human health risk assessment. The 2011 ESD established Maximum Contaminant Levels (MCLs) as the cleanup criteria for contaminants in groundwater, but the 2011 ESD did not address leachability of contaminants in soil to achieve MCLs in groundwater. The 2011 ESD included text regarding a proposed Monitored Natural Attenuation (MNA) pilot test for the area of

groundwater contamination in the LA beyond the Pristine Site property boundary. Table 1 below summarizes clean-up goals based on the 2011 ESD, the 1990 ROD Amendment, and the 1990 Consent Decree Remedial Action Plan (CD RAP). The 2011 ESD provides the current cleanup standards for soil and groundwater.

Table 1: Comparison of 1990 and 2011 Cleanup Standards

CONTAMINANT	**GROUNDWATER CLEANUP STANDARD (micrograms per liter [ug/l])**		**SOIL CLEANUP STANDARD (ug/kg)**	
	1990 ROD AMENDMENT and CD RAP	**2011 ESD** (Current Standard)	**1990 ROD AMENDMENT and CD RAP**	**2011 ESD** (Current Standard)
Aldrin	0.0012	0.0040	15	No individual cleanup standards: cumulative risk as calculated from actual soil concentrations may not exceed 10^{-5}
Arsenic	0.0025	10	-	
Benzene	0.67	5	116	
Benzo(a)Pyrene	0.0031	0.2	14	
Chloroform	0.19	80	2043	
DDT	0.0012	Deleted	487	
1,2-Dichloroethane	0.94	5	19	
Dieldrin	0.0011	0.0042	6	
Ethylbenzene	2400	700	-	
Pentachlorophenol	1010	1	-	
2,3,7,8-TCDD (dioxin)	2×10^{-7}	Deleted	0	
Tetrachloroethene	0.88	5	3244	
Trichloroethene	2.8	5	175	
Vinyl Chloride	0.02	2	-	
Chlorobenzene	488	100	-	No individual cleanup standards, cumulative hazard index no greater than 1
1,2-Dichlorobenzene	75	600	-	
1,1-Dichloroethene	0.033	7	285	
1,1,1-Trichloroethane (1,1,1-TCA)	200	200	-	
Phenol	3500	Deleted	-	
Toluene	15,000	1000	-	
Barium	1000	Deleted	-	
Beryllium	0.0039	4	-	
Cadmium	10	5	-	
Chromium	50	100	-	
Copper	1000	Deleted	-	
Fluorine	4000	Deleted	-	
Lead	15	15	-	
Mercury	2	Deleted	-	

Note: - indicates not of concern

Status of Implementation

Construction of the remedy for the Pristine Site was completed in five phases including 1) building demolition, 2) excavation and thermal desorption of soil with on-site replacement, 3) construction of a cap and installation of an ISVE system, 4) construction of a 150 gallons per minute (gpm) pump and treat system, and 5) construction of a 300-gpm groundwater extraction and treatment system.

Demolition of buildings at the Site, as described in the 1987 ROD, was completed in 1992. Building materials were decontaminated and recycled when possible, and residual building materials were disposed at a permitted landfill. In 1993 and 1994, approximately 13,000 tons of contaminated soil at the Site was excavated, treated, and returned to the Site excavation in accordance with the 1993 ESD. Between 1994 and 1998, an ISVE system and a cap were constructed at the Site in accordance with the 1990 ROD Amendment. The ISVE system began operation in 1997 concurrent with the completion of the 150-gpm groundwater extraction and treatment system. The 1987 ROD required groundwater extraction and treatment at the Site. The 150 gpm and 300 gpm extraction and treatment systems were constructed in 1997 and 1998, respectively. The 150-gpm system started operation in 1997 and included LA extraction wells EW-1, EW-2, and EW-3. Extracted groundwater from these wells was treated after combination with groundwater recovered from the ISVE-associated dewatering system. The treatment system included metals precipitation, carbon adsorption, and air stripping. Treated water was discharged to Mill Creek under a National Pollutant Discharge Elimination System (NPDES) permit. In 1998, the 300-gallon groundwater extraction system, including EW-4 and EW-5, was constructed and began operation. EPA issued a Preliminary Site Closeout Report (PCOR) for the Site on September 30, 1998 (EPA, 1998) which documented completion of construction of all components of Site remediation.

In 2002, the potential for entrainment of contamination from adjacent facilities was identified, and EPA approved a decrease in groundwater extraction rates to a total of 375 gpm to reduce the possible contribution from adjacent facilities. In 2006, EPA approved a further reduction in pumping rates to 150 gpm. In 2008, the extraction system was reconfigured with EPA approval. EPA approved a MNA Pilot study for the site in 2010, and the groundwater extraction and treatment system was discontinued in 2011.

Since the 2016 FYR, the ISVE dewatering system was discontinued, and the MNA pilot study was completed. All LA extraction wells beyond the property boundary including EW-2, EW-3, EW-4, and EW-5 were shut down during the pilot study period, and Pristine, Inc. monitored water quality and water levels. Pristine, Inc. issued the report *Monitored Natural Attenuation (MNA) Pilot Program Performance Data Evaluation Report* (GHD, 2017) which concluded that natural attenuation was acting to reduce contaminant concentrations of chemicals of concern though dilution, dispersion, and biodegradation. The report proposed that MCLs could be achieved by 2029 throughout the plume beyond the property boundary using MNA. EPA retained a contractor to perform an independent review of Site data pertaining to the performance of MNA. The contractor evaluated water level and water quality data and updated a groundwater flow model to improve the understanding of Site conditions. The contractor's report *Evaluation of Monitored Natural Attenuation* (SSPA, 2018) noted increasing contaminant concentrations in wells used to define the downgradient plume boundary, an increased number of detections of contaminants of concern, and evidence of contaminant migration beyond the existing monitoring well network. The report indicated the time required to meet performance goals at several wells could not be predicted because of increasing or variable (but not decreasing) concentrations of contaminants in groundwater.

In response to these findings, on August 10, 2018, EPA requested the Pristine PRPs restart EW-5. EPA also requested the Pristine PRPs evaluate Site conditions to determine if pumping EW-5 at 50 gpm would be sufficient to control the migration of contamination near the plume boundary. On September 26, 2018, the Pristine PRP Trust notified EPA they were unable to restart EW-5 because of well integrity issues. On October 26, 2018, the Trust notified EPA that, in lieu of EW-5, they restarted EW-4 in an attempt to control plume migration. Groundwater monitoring has continued at the Site, and EPA has updated the groundwater model including evaluations of capture zones for the current extraction system including wells EW-1 and EW-4 (LA) and GW-108 (UA). In 2019, EPA requested Pristine, Inc. sample a subset of monitoring wells for per- and polyfluoroalkyl substances (PFAS) and 1,4-D to determine if these substances were present at the site. This work was performed in the summer of 2020.

Institutional Controls

The 1987 ROD required ICs to restrict property use, maintain the integrity of the remedy, and assure the long-term protectiveness for areas which do not allow for UU/UE. ICs in the form of governmental controls, enforcement and permit controls, proprietary controls, and informational device controls have been implemented at the Site in accordance with the 1987 ROD.

The Site is subject to four types of ICs including governmental controls, enforcement and permit controls, proprietary controls, and informational device controls. The following IC information was summarized in the 2016 FYR and has not changed since 2016:

Governmental Controls

- Ohio Revised Code (ORC) 3734.02(H) prohibits filling, grading, excavating, building, drilling, or mining on a former hazardous waste or solid waste facility without authorization from the Director;
- Ohio Administrative Code (OAC) Chapter 3701-28, et. seq. prohibits installing, modifying, or closing private wells without a permit;
- City of Reading and Ohio Zoning Codes classify the Site location in a zone where permitted use is heavy industrial, and Ohio Basic Building Code requires a permit to erect building improvements to real property; and
- Ohio Common Law prohibits trespassing.

Enforcement and permit controls

- The EPA Remedial Design/Remedial Action (RD/RA) CD contains governmental controls as Applicable or Relevant and Appropriate Requirements (ARARs) which restrict land and groundwater use, set applicable cleanup standards, incorporate IC requirements, and identify violations subject to federal court and statutory sanctions.
- The State of Ohio CD between OEPA and Pristine, Inc. documents enforcement for violations of State law subject to federal court and State statutory sanctions.
- The City of Reading closed its municipal well field in March 1994 as a result of an OEPA mandate (the City's compliance was subject of OEPA and State of Ohio court enforcement).
- The City of Reading's police department enforces the prohibition of trespassing on private property.

Proprietary ICs

- The 2009 Environment Covenant (EC) (SEMS ID 339991) restricts the following activity and use of the Site:

- No drilling, digging, or building; or the installation, construction, removal, or use of any buildings, wells, pipes, roads, ditches, or any other structures is allowed unless the written consent of EPA to such use or activity is first obtained;
- No commercial or residential use is allowed, including, but not limited to, the construction, installation, or use of any structures or buildings for residential or commercial purposes, or the use of the property for the storage of drums;
- No consumptive use of Site groundwater is allowed until cleanup goals are achieved; and
- No interference with the Site remedial components is allowed.

Informational Device Controls

- A deed notice was recorded with the Hamilton County Recorder's Office on January 24, 2006.
- One consistent legal description of the Site is used in the deed notice, the Access Agreement, the EC, and in the deeds to the property. The Site survey, which is part of the IC study, has been revised to identify encumbrances.
- The RD/RA CD recorded with the Hamilton County Recorder's Office on August 28, 2006 requires deed restrictions.
- The CD requires that the CD and deed restrictions be recorded in the Hamilton County Recorder's Office.
- Site history and status is available through the Freedom of Information Act and the Ohio Public Document request procedures.
- Site history and status is easily available by accessing the websites maintained by EPA and OEPA.
- Environmental Site Assessments (Phase I) located relevant information about the Site.
- Easements shown in the Site survey impact the Site. The recorded access agreement between the property owners and the Pristine, Inc. trustees shows the existence of the deed notice.

A summary of the ICs for the Site is listed in Table 2, and Appendix C contains a map showing the area in which the ICs apply.

Table 2: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Entire 13.327 acres Site	Yes	Yes	Site-wide	Non-interference with the remedial action	EC executed, record #11219 page 1959 at Hamilton County Recorder's Office August 19, 2009
				Site shall be used for industrial purposes only no commercial or residential uses allowed	The site is zoned for industrial use
				No filling, grading, building, excavation, drilling, or mining without prior authorization	ORC 3737.02(H) prohibits filling, grading, excavating, building, drilling, or mining on a former hazardous waste or

					solid waste facility without authorization from the Director
Property- The 2.5374 acres of the Site where soil was remediated to ROD cleanup levels and placed beneath a cap	Yes	Yes	Zone A and Zone B (see exhibits in Appendix C or Figure 3 in Appendix B)	Restricted area shall be used for industrial purposes only	EC executed, record number 11219, page 1959 at the Hamilton County recorder's office on August 19, 2009
				Prohibit commercial, residential use or other prohibited activities at the Site	The Site is zoned for industrial use
				Prohibit consumptive use of groundwater, non-interference with remedy components	Deed notice was recorded with the Hamilton County Recorder's Office on January 24, 2006
				Prohibit filling, grading, excavating, building, drilling, or mining without prior authorization	OAC 3737.02(H) prohibits filling, grading, excavating, building, drilling, or mining on a former hazardous waste or solid waste facility without authorization from the Director
Site remedial components including groundwater extraction, treatment, and ISVE system	Yes	Yes	Site-Wide	Prohibit interference with the remedial systems	August 19, 2009 Executed EC, Record Number 11219, Page 1959 at the Hamilton County Recorder's Office
Areas of the Site and downgradient areas where groundwater exceeds the cleanup goals	Yes	Yes	Site-wide	Prohibit consumption of contaminated groundwater until cleanup goals are achieved	OAC Chapter 3701-28, et seq. prohibits installing, modifying, or closing private wells without a permit

The Trust submitted a draft IC Action Plan in April 2007 and obtained a 2009 EC, a proprietary IC under the 2005 Ohio Uniform Environmental Covenant Act. The EC set enforceable restrictions that run with the land to bind future owners to the necessary restrictions to help ensure long-term Site stewardship. ICs include the 2009 EC covering the entire former CDS property. Pristine, Inc. operations occurred on the eastern portion of the CDS property, particularly the Magic Pit disposal activities. Installation of drinking water wells in the vicinity of the groundwater contamination is controlled by city

and county ordinances. The Pristine PRPs contact the City of Reading on an annual basis to discuss any proposals for changes in property use.

Section 4 of the draft 2007 IC Action Plan states the Pristine, Inc. Trust will assess ICs on an annual basis and provide a report to EPA. Section 4 includes a communications plan for initiating and maintaining communications with the parties involved with or affected by an IC. As part of this assessment, the Pristine, Inc. Trust and/or their contractor, Gutteridge, Haskin, and Davey (GHD) Services, Inc., meet with local officials with the City of Reading and Hamilton County to obtain information and determine IC effectiveness. This information is conveyed to EPA on an annual basis. In 2009, CDS representatives signed an EC restricting future activities at the CDS property. This EC ensures the restrictions are enforceable and run with the land to bind future owners to the necessary restrictions to help ensure long-term Site stewardship. The Site is secured with maintained fencing and is managed by GHD as part of regular operation and maintenance (O&M) of the Site.

Current Compliance: The Pristine Trust submits an annual IC report summarizing any activities pertaining to the ICs. The most recent annual IC report was received on November 12, 2020 (Letter from GHD to EPA). Based on inspections and discussions with the Pristine PRP Trust and OEPA, EPA is not aware of Site or media uses which are inconsistent with the ICs stated objectives.

Long Term Stewardship:
Compliance with ICs is necessary to ensure the protectiveness of the remedy. Long-term stewardship is required to confirm that the ICs are maintained, monitored, and enforced so that the remedy continues to function as intended. Long-term stewardship involves ensuring effective procedures are in place to maintain and monitor the Site.

The November 2020 IC assessment performed by Pristine Trust (GHD, 2020) did not identify any potential violations or concerns pertaining to the ICs for the Site. Pristine Trust did not report on the activities on the western portion of the former CDS property. Upon further review, it became apparent that Pristine is not required to report on activities on the former CDS property based on the existing communications plan. OL/JL Legacy LLC is listed as the current CDS property owner on the Hamilton County Website. Jeffrey Long, one of the current owners of the CDS property, indicated via a February 15, 2021 electronic mail message to EPA that the EC on the CDS property has been maintained. Pristine Trust notified EPA the CDS property is being used as a parking and warehousing facility. The IC Action Plan should be updated to fully address long term stewardship procedures and finalized for the Site to ensure ICs continue to be properly maintained and reported.

In summary, several ICs are in place for the Site. The ICs appear to be protective of human health and the environment. The implementation of the EC in 2009 that "runs with the land" ensures enforceability of the ICs over time, includes EPA as a party, and gives EPA and several other parties, such as the Pristine Trust and the local unit of government, enforcement rights. EPA believes that the current IC monitoring program by GHD is acceptable except that Pristine should report on CDS property use.

A final approved IC Action Plan is not available for the Site and should be updated, although the components of the draft plan have been implemented successfully.

IC Follow-up Actions Needed:
A final IC Action Plan is needed to document maintenance of the ICs until ICs are no longer required for the Site. This plan should include a process for obtaining and reporting information on property use including the Pristine, Inc. property and the CDS property.

Duke Power has proposed and selected a route for a high-pressure gas line that will intersect components of the Pristine, Inc. remediation system, particularly the controller and conveyance system attached to operational EW-4. Evaluation and monitoring of the plans and installation of the gas line will be needed to ensure remediation at the Pristine, Inc. Site continues with minimal interruption and that compliance with the objectives of the ICs is maintained.

Systems Operations/Operation & Maintenance
During the review period, extraction wells within the Pristine, Inc. property boundary including EW-1 (LA) and GW-108 (UA) continued to operate. In 2017, the UA dewatering system was discontinued without EPA approval, although the Pristine, Inc. 2017 annual report indicated the system had been discontinued. LA extraction wells beyond the property boundary, including EW-2 through EW-5 did not operate between 2016 and October 2018. In August of 2018, EPA requested that Pristine, Inc. restart groundwater extraction from EW-5 on the eastern plume boundary near the distal toe of the plume to reduce contaminant migration across the leading edge of the plume boundary. In October 2018, Pristine, Inc. restarted extracting groundwater from EW-4 because the integrity of EW-5 was compromised, rendering the well inoperative. Quarterly and annual reports summarizing the operations and maintenance of the Site remediation system have been submitted to EPA during the review period. The NPDES discharge permit was renewed on October 9, 2020 and became effective on November 1, 2020.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 3: Protectiveness Determinations/Statements from the 2016 FYR

OU #	Protectiveness Determination	Protectiveness Statement
01/Sitewide	Protective	The remedy at the Pristine, Inc. Site is protective of human health and the environment because the remedy is functioning as anticipated and ICs have been implemented at the Site. All immediate threats have been addressed; there is no evidence of exposure to Site related contaminants; and the existing Site and groundwater uses are consistent with the objectives in the remedy and EC. Continued compliance with of effective ICs will be ensured by maintenance of ICs, long-term stewardship procedures, and maintenance of remedy components.

In the 2016 FYR, EPA did not identify any issues or recommendations affecting remedy protectiveness for the Pristine Site.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by publication in the local newspaper, Cincinnati Enquirer, on March 11, 2021 (Appendix D), stating that there was a FYR and inviting the public to submit any comments to EPA. No public comments were received by EPA. The results of the review and the report will be made available at the Site information repository located at Public Library of Cincinnati and Hamilton County, Reading Branch, 9001 Reading Road, Reading and electronically at www.epa.gov/superfund/Pristine.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy implemented to date**.** The results of these interviews are included in Appendix D and are summarized below.

The following people were interviewed during the FYR process: Ron Pitzer (Pristine Trustee), Henry Cooke (GHD), Rob Robertson (GHD), Scott Glum (OEPA), and Patrick Ross (City of Reading). The following is a summary of the interviews.

Duke Power is planning to install a high-pressure gas pipeline in the subsurface in the vicinity of the Pristine Site. Duke has proposed to install the pipeline underneath the Pristine Site controller and force main conveyance system for EW-4. Pristine, Inc. has interfaced with Duke and will continue to be involved with observation during excavation and installation of the Duke pipeline. Repairs to the controllers and conveyance system would likely require a substantial financial investment. Pristine, Inc. plans to discontinue operation of EW-4 while the gas line is installed. If EW-4 remains shut down for an extended period of time, it is possible the plume will migrate beyond its present position causing a potential negative impact on groundwater quality in the area.

The overall operations of the groundwater extraction and treatment system may be affected by the age of the equipment. Some of the controller and computer components may be difficult to replace and updating the system may be required in the future. The extraction system is treated for fouling on an annual basis. Total pounds of VOCs removed from extracted groundwater using the current system configuration is less than 30 lbs a year, and the system has been on-line approximately 98% of the time in the past year. Pristine, Inc. anticipates it may have to replace one or more pumps and the controller in the next five-year period.

Groundwater in the immediate vicinity of the Pristine, Inc. plume is not used for drinking, and there are no plans for the City of Reading to restart its wellfield as its drinking water treatment system has been dismantled. The potentiometric surface of the Mill Creek Aquifer is recovering as many of the former drinking water and industrial uses of the aquifer have been discontinued, although a local water supply system continues to draw water from the Mill Creek Aquifer approximately one mile west-southwest of the Pristine plume boundary. Public water has been available in the area since the 1930s including the Reading and Wyoming water supply systems in addition to other systems in the Mill Creek Valley.

The Port (formerly Port of Greater Cincinnati Development Authority) is working to redevelop property in the area. In the next few years, use of the Pristine, Inc. property as a parking facility may be proposed as part of the overall redevelopment plan.

Data Review

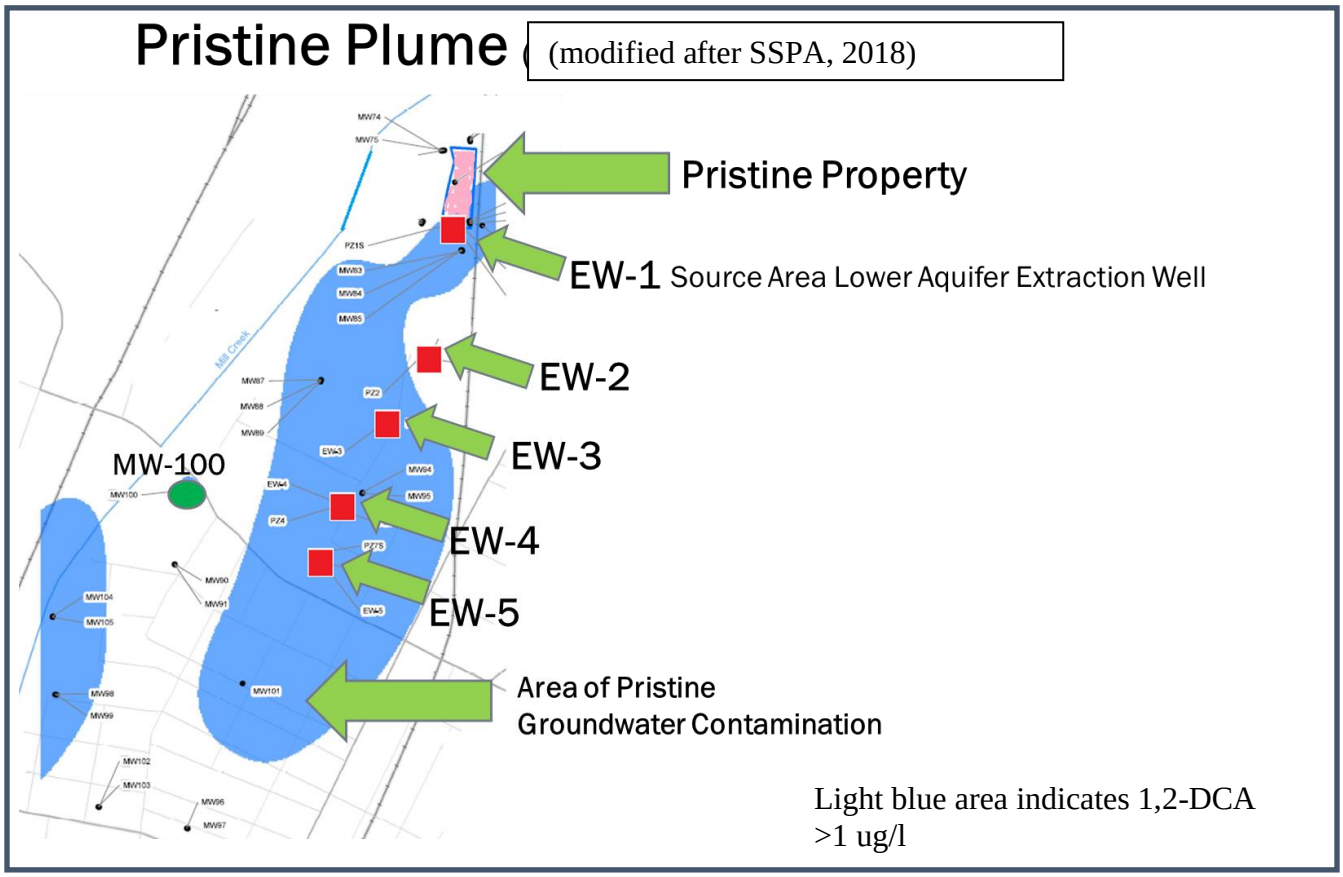
Groundwater sampling and analysis results for monitoring and extraction wells in the UA and LA at the Pristine Site are tabulated and illustrated in Appendix E. Data were reviewed to determine if the remedy is functioning as intended and if the remedy remains protective. Opportunities to improve or optimize the remedy were also evaluated. As part of the FYR data review process, EPA assembled information and began discussions with Pristine PRP Trust representatives regarding the following topics:

1. Presence/absence of a continuing source of groundwater contamination at the Site that may prevent or delay achievement of groundwater cleanup goals;
2. Evidence of EW-1 capturing all contamination migrating from the source area into the LA;
3. Capture zone of extraction well GW-108 in the UA near the source area;
4. Whether the pumping rate at EW-4 is sufficient to address LA contaminant migration near the southwestern and western plume boundary;
5. The groundwater flow direction in the UA and whether the current monitoring network in the UA is adequate;
6. Whether groundwater flow and contaminant transport from the potential source area is defined;
7. The need for additional monitoring for PFAS/1,4-D;
8. The potential effect of regional contamination on Pristine groundwater contamination in the LA; and
9. Whether the LA plume is adequately monitored.

EPA tasked SSPA to perform complex groundwater modeling to assist in answering several of these questions, summarized below. SSPA prepared modeling reports and other documents that are included in the reference section (Appendix A).

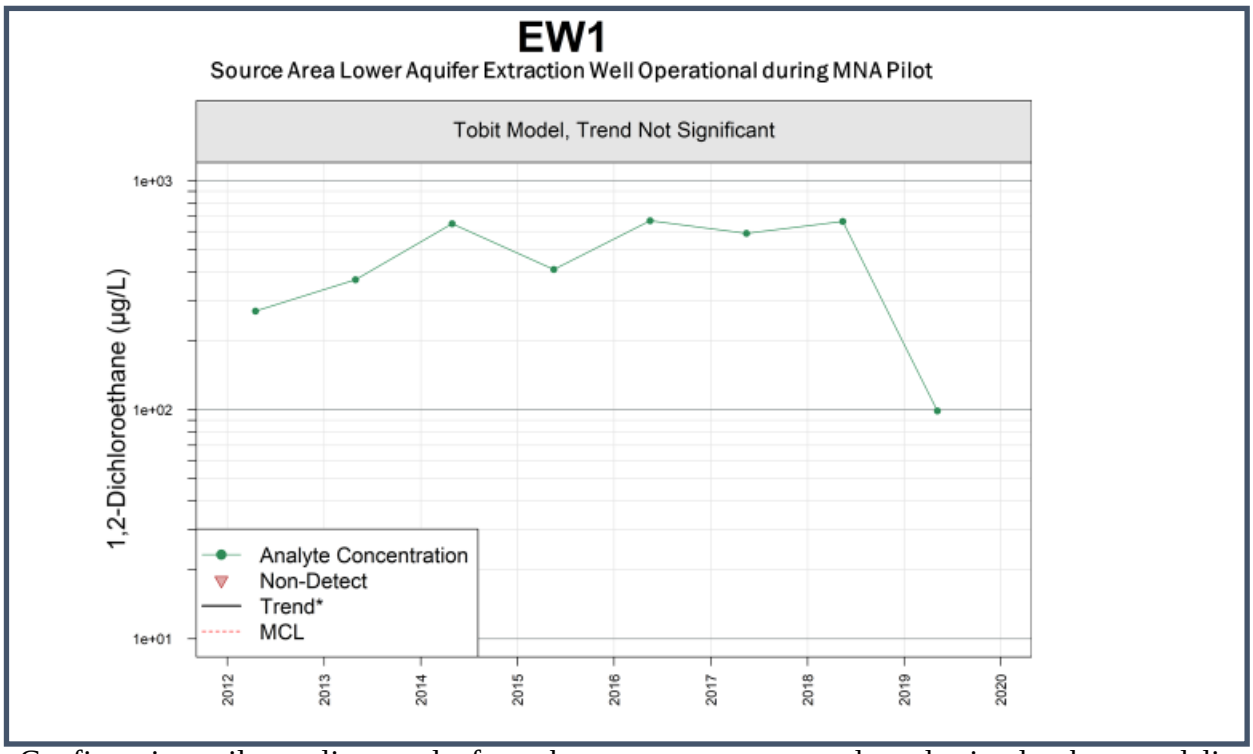
Is there evidence of a continuing source of groundwater contamination at the Site that could delay achievement of groundwater cleanup goals?

After thirty years of pumping groundwater, a 1,2-DCA plume over a mile long continues to exist in the LA (see figure below). The 1987 ROD estimated MCLs would be achieved in 10 years. EPA did not update the estimated time required to achieve MCLs in subsequent decision documents.

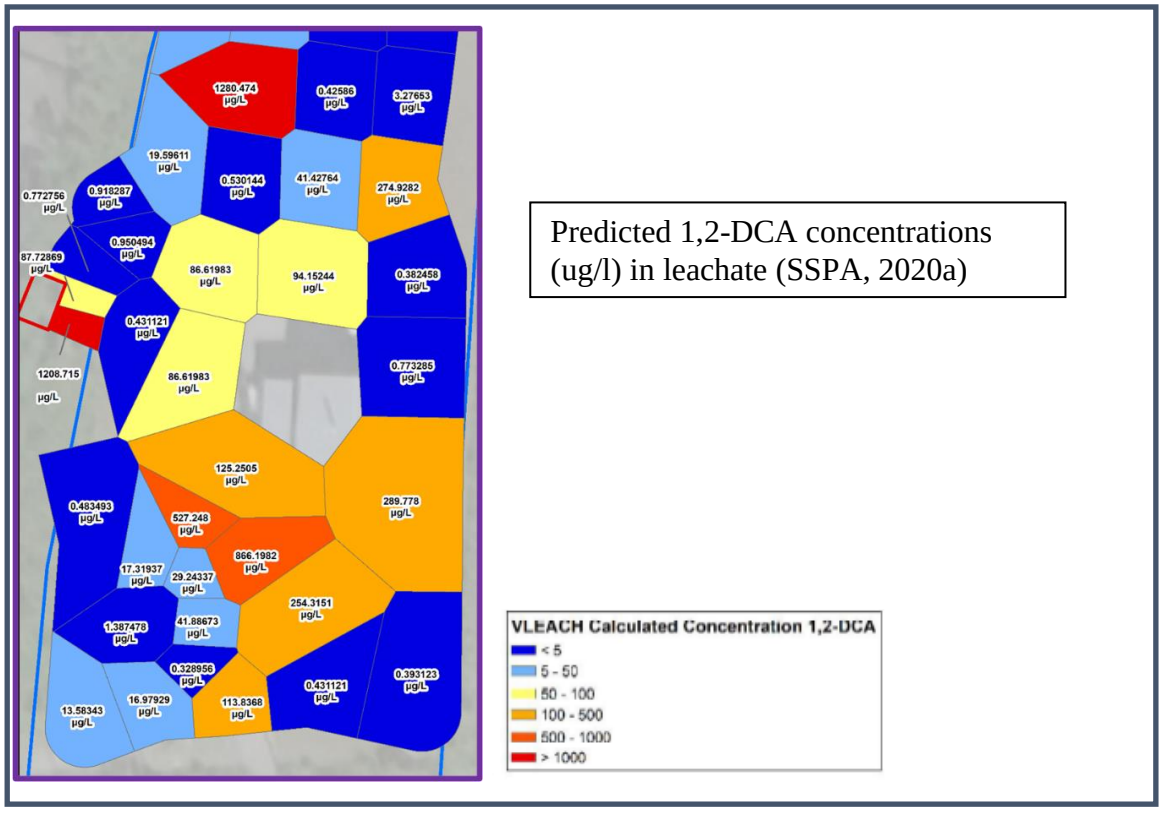


The 1987 ROD assumed all soil contamination would be addressed by In-situ treatment when estimating the length of time to achieve MCLs. One potential explanation for the extended lifespan of the plume includes a continuing source of contamination. The following lines of evidence suggest contamination is being released from the source area and is not adequately captured before or after entering the LA:

- EW-1, the sole LA extraction well at the boundary of the Pristine property has had concentrations of 1,2-DCA between 100-700 ug/l over the past five years. This suggests a source area present in the UA is continually releasing contamination and that contamination is migrating to the LA in the vicinity of EW-1. The figure below illustrates recent 1,2-DCA concentrations at EW-1 (From EPA, 2020):



- Confirmation soil sampling results from the source area were evaluated using leachate modeling (SSA, 2020). SSPA (2020) identified potential hotspots in soil that may continue to contribute contaminants to groundwater including in the vicinity of the Pristine Site as shown below:



Predicted 1,2-DCA concentrations (ug/l) in leachate (SSPA, 2020a)

- SSPA used VLEACH (a vadose zone leaching model) to predict 1,2-DCA concentrations in leachate based on soil confirmation sampling results. Some of the contamination in the soil represented by confirmation sampling is currently below the water table. The confirmation soil

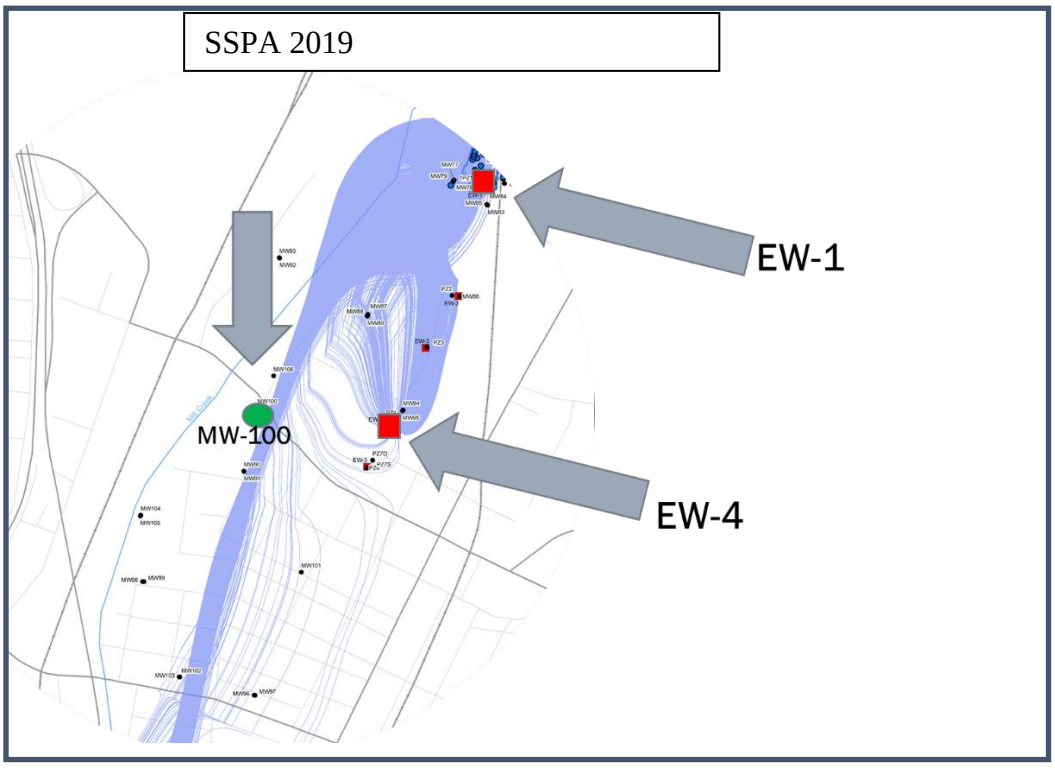
samples were collected in 2012 and 2013, and dewatering was discontinued in 2017 allowing the water table to rise into the soil column. Based on measured water levels, at least half of the confirmation samples evaluated using leachate modeling are likely below the current water table. Actual leachate concentrations at the Site may exceed those estimated using VLEACH because VLEACH is a model used to calculate leachate concentrations from contaminants in unsaturated soil. Modeled leachate concentrations suggest a source of groundwater contamination may remain at the Site in or directly above the UA.

- A review of soil sampling results revealed the number and location of confirmation soil samples collected directly beneath the Magic Pit (liquid waste storage and disposal pit) are insufficient to characterize the nature of this potential source area.

- The potential for interconnection of the UA and LA near and under the Magic Pit is unknown.

Is EW-1 adequately capturing all contamination migrating from the source area into the LA?

- SSPA (2019) evaluated particle tracks using an updated groundwater flow model to determine if all contamination released from the Pristine, Inc. Site is likely captured by EW-1 and EW-4. The results of the particle tracking suggest a westward component of groundwater flow towards Mill Creek may exist in the UA, and a portion of the particles were not captured by EW-1 or EW-4. The particle tracking predicted some contamination may reach MW-100 as shown below:

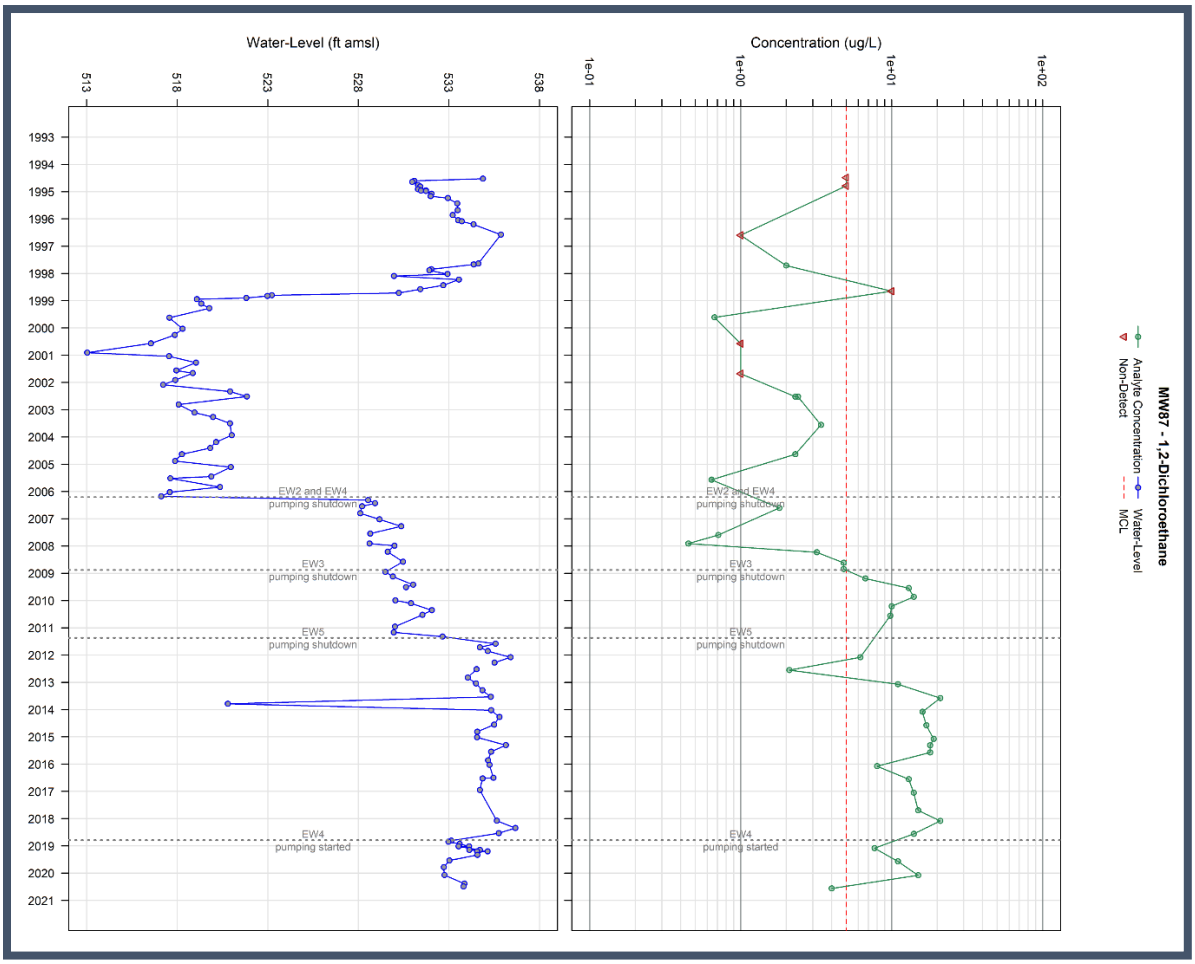


This is a line of evidence that contamination from the Pristine Site source area may be reaching the LA within the current remediation system configuration. If continued releases of contamination from the source area occur at Pristine, this will result in an extension of the time required to meet remedial goals at the Site.

- Further evaluation of the EW-1 capture zone suggests the well likely captures contamination that is in the LA at the Site boundary. However, it appears contamination in the UA bypasses EW-1 before it enters the LA in the vicinity of the Site (SSPA, 2021).

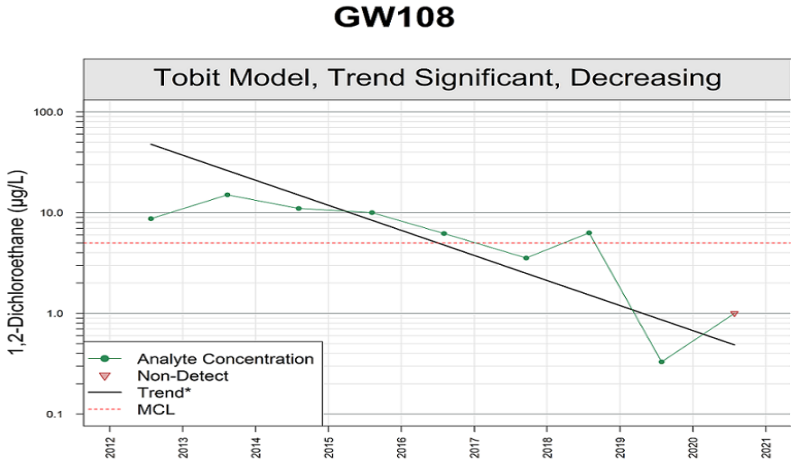
- Concentrations of 1,2-DCA detected in MW-87 downgradient of EW-1 have increased in response to discontinuation of pumping at various extraction wells. If EW-1 was capturing all contamination from the source area entering the LA, 1,2-DCA should have declined over time at MW-87 and should not show increases when pumping at other extraction wells was discontinued.

  The figure below (from SSPA, 2021b) illustrates water levels and water quality at MW-87 over different configurations of extraction wells:



Is extraction well GW-108 adequately capturing and controlling groundwater contamination in the UA near the source area?

GW-108 was used to recover groundwater from a hot spot in the UA. The pumping rate at GW-108 was limited by aquifer characteristics. Initially, concentrations of contaminants at this well were elevated but over time, levels of contamination decreased substantially as shown below.



Recent concentrations of 1,2-DCA in GW-108 (SSPA, 2020b)

SSPA evaluated the capture zone for GW-108 and determined that only a small portion of the UA was captured by this well as shown in the figure below:

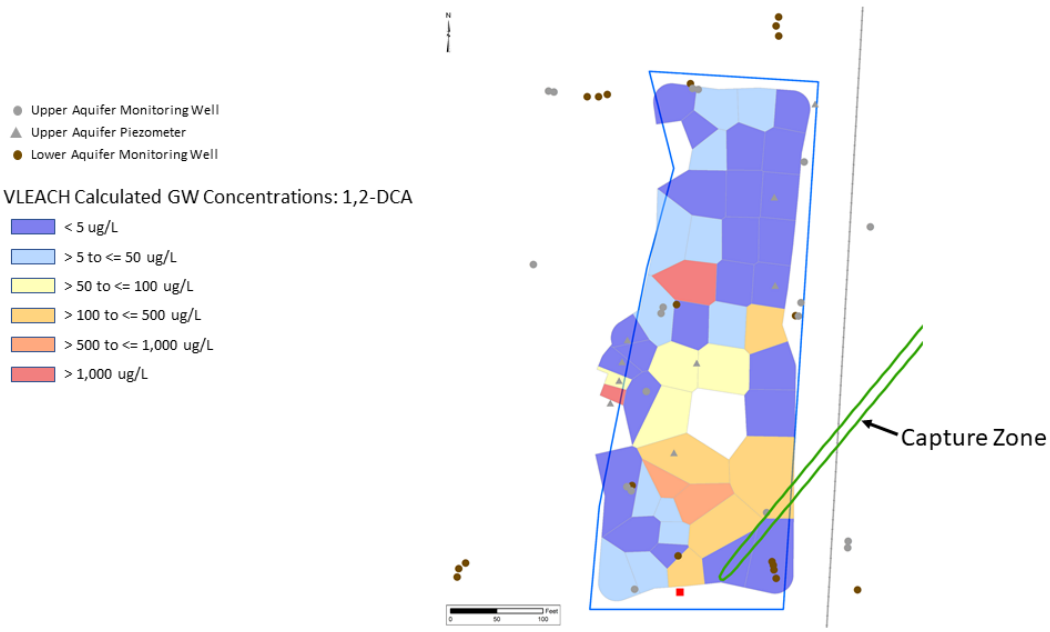
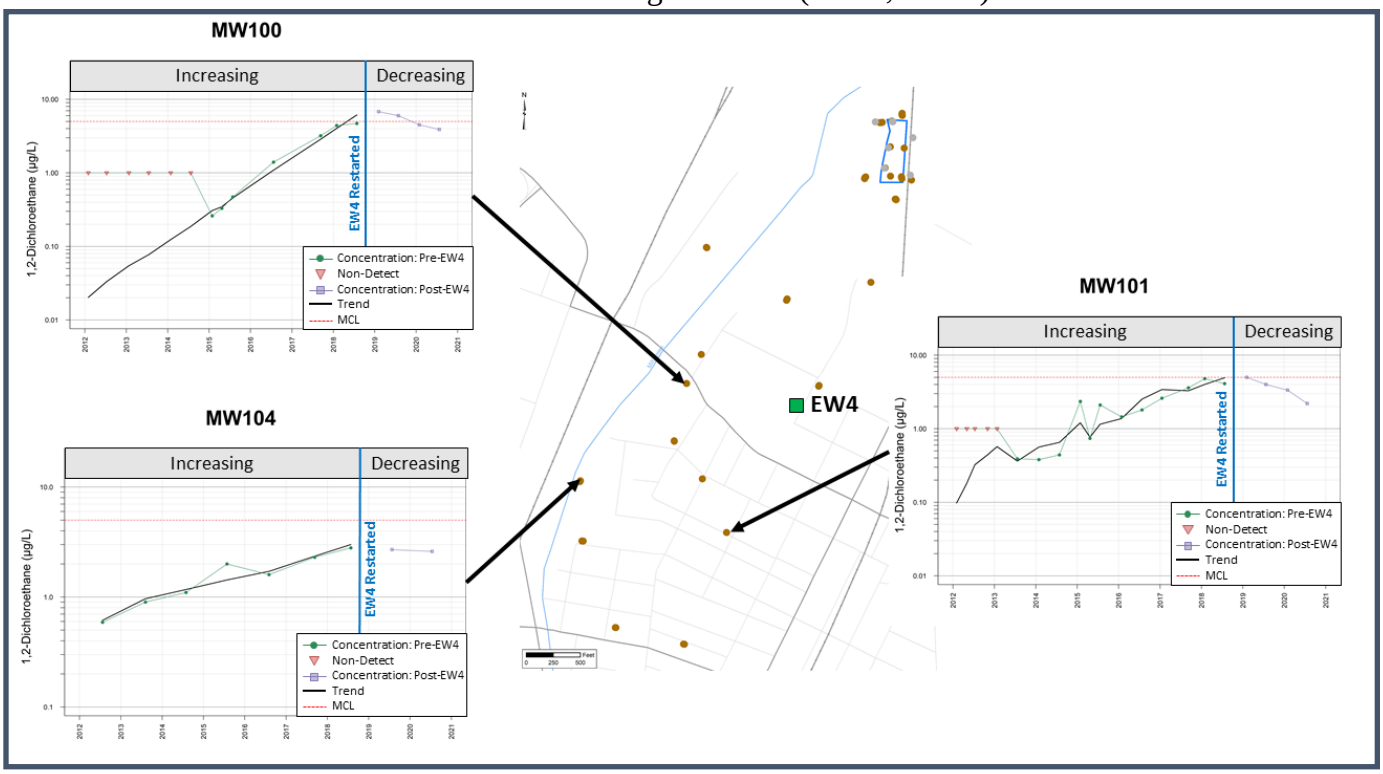


Figure illustrating GW-108 Capture zone (SSPA, 2020b)

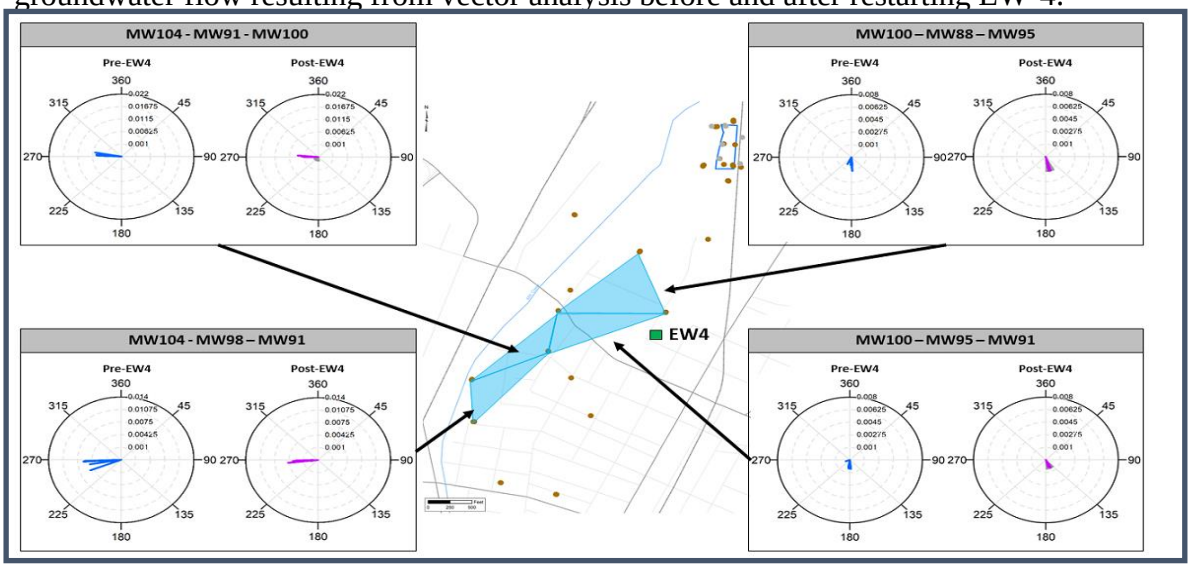
EPA and the Pristine PRP Trust agreed pumping at GW-108 could discontinue although continued monitoring will be needed to confirm that contamination rebound does not occur.

Is the pumping rate at EW-4 sufficient to address LA contaminant migration near the plume boundary?
At the conclusion of the MNA pilot test, EPA requested a restart of extraction well EW-5 to control migration of the plume boundary as observed at MW-100 and MW-101. Pristine Trust representatives evaluated EW-5 and determined the well had an integrity issue. In lieu of EW-5, Pristine Trust

representatives restarted groundwater extraction from EW-4. EPA compared EW-4 and EW-5 and noted that the screened intervals were different. SSPA performed predictive modeling to evaluate pumping rates at EW-4 that would be needed to address the same area of contamination that would have been captured or affected by EW-5 (SSPA, 2020). Initial results suggested EW-4 would need to be pumped at a higher rate than proposed to duplicate EW-5. After EW-4 was restarted, an evaluation of water quality at MW-100 and MW-101 showed that EW-4 was influencing contaminant migration and reducing concentrations below MCLs as illustrated in the figure below (SSPA, 2021a):

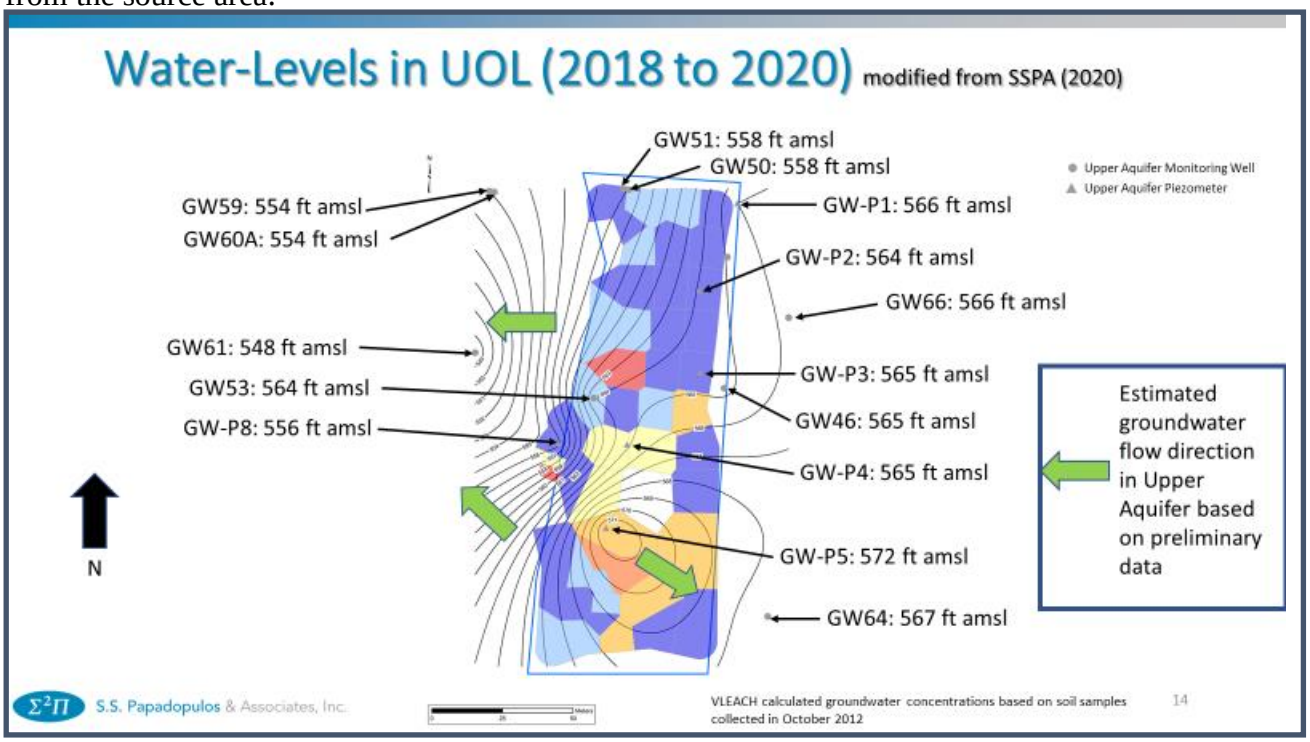


Changes in the magnitude and direction of groundwater flow near the plume boundary indicate EW-4 is influencing the hydraulics of the LA and reducing the amount of groundwater movement at or near the plume boundary. The diagrams below (SSPA, 2021a) illustrate the magnitude and direction of groundwater flow resulting from vector analysis before and after restarting EW-4:

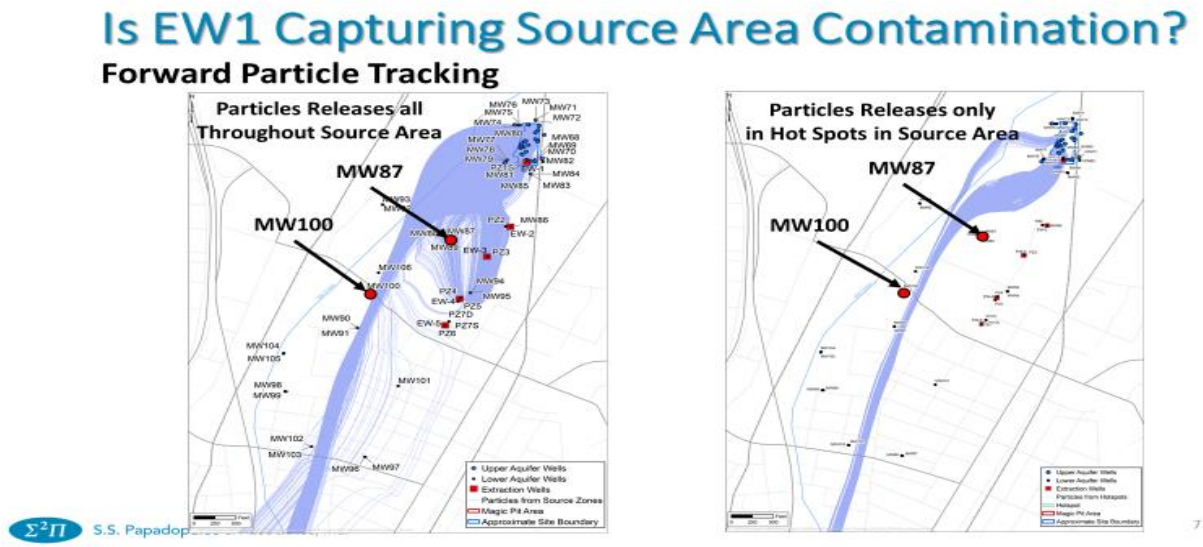


What is the groundwater flow direction in the UA and is the UA adequately monitored in and downgradient of the source area?

EPA and SSPA evaluated conditions in the Upper Outwash Lens (UOL) in the UA based on available water levels above mean sea-level (AMSL) in the existing monitoring well network. The figure below shows the initial interpretation of groundwater flow directions including a western component of flow from the source area:

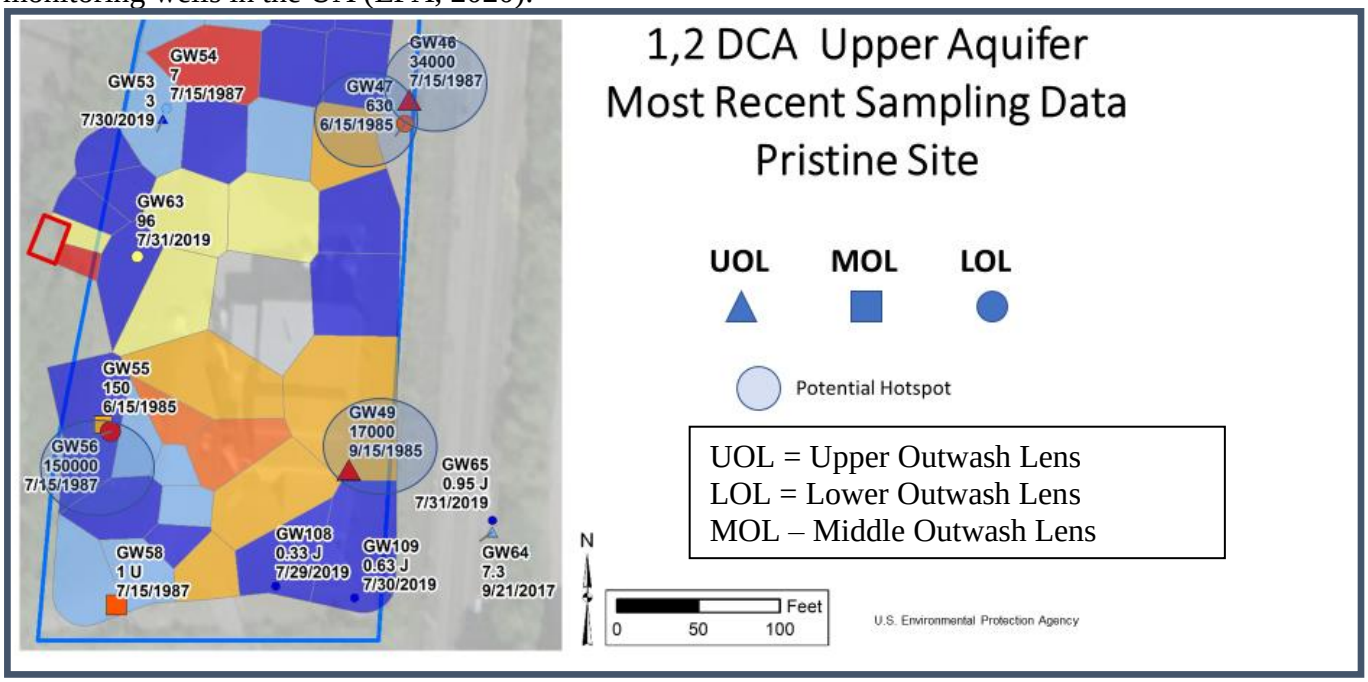


The interpretation suggests a westward component of flow from the source area that is not adequately monitored by the current network. Particle tracking performed to evaluate the effectiveness of EW-1 also identified a potential westward component of flow in particles released from the source area as shown below (From SSPA 2021b).



EPA evaluated the monitoring network in the UA at and near the source area. EPA discovered that several of the most highly contaminated wells were not sampled after the RI was completed.

The figure below indicates the most recent sampling data and most recent 1,2-DCA concentrations in monitoring wells in the UA (EPA, 2020).



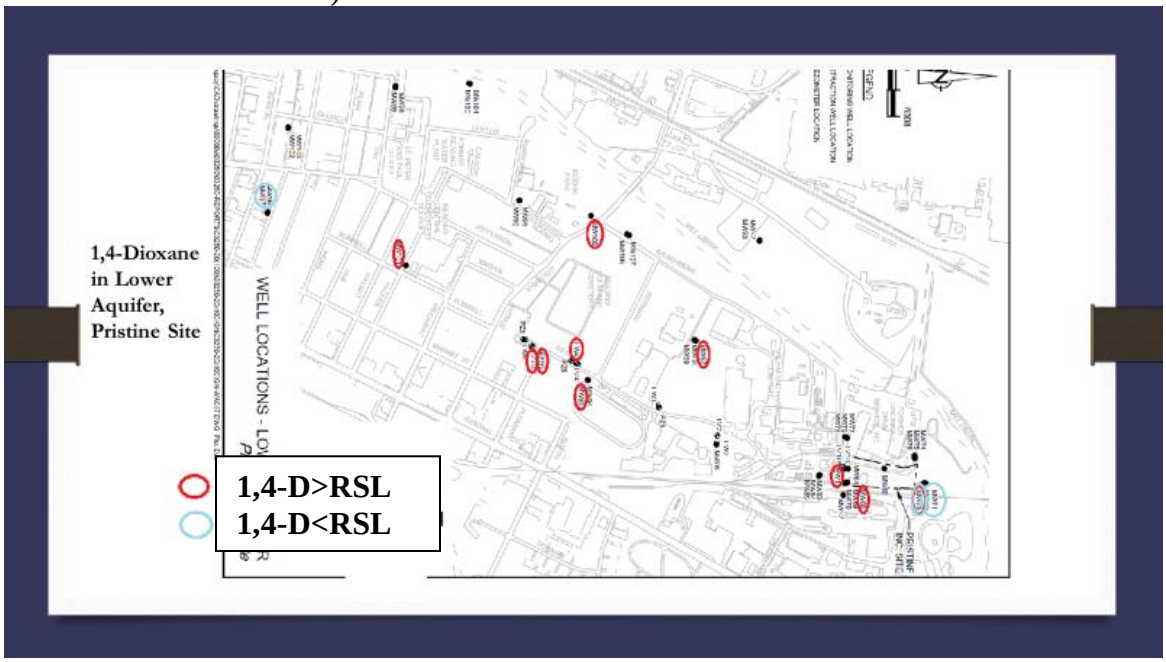
Because remediation of the source area occurred after 1987, 1,2-DCA concentrations in key UA wells such as GW-49, GW-56, and GW-46 likely improved. As these wells have not been sampled and are damaged or missing, critical evaluation of water quality improvement at these points is not feasible. Overall, it appears the monitoring within the source zone is not adequate to evaluate the nature and extent of contamination in the UA or the effectiveness of the source remediation. Additional investigation of the UA is needed including installation of new monitoring wells and replacement of former key monitoring points to confirm the nature and extent of groundwater contamination in the UA.

If UA contamination has migrated to the west from the Magic Pit towards the adjacent CDS property, there is a potential concern for vapor intrusion. The current use of the CDS building has been reported to be a warehouse and storage facility, but this has not been field-checked. It is not known if anyone uses a portion of the space as an office associated with warehousing and storage. One confirmation soil sample collected adjacent to the Magic Pit after completion of soil remediation exhibited 6,200 ug/kg 1,2-DCA. This suggests that a source of contamination may remain in soil that could migrate into air within the adjacent CDS building. However, it is not possible to evaluate the potential for vapor intrusion using soil data. Soil gas data are needed to evaluate the potential for vapor intrusion, and no soil gas data are available. Recent water quality data from P-6, the UOL monitoring point screened above a surficial clay unit closest to the CDS property were evaluated using Vapor Intrusion Screening Level (VISL) calculations. VISL calculations suggested a possible ELCR of $8.6E^{-5}$ based on commercial use of the property and a groundwater concentration of 200 ug/l of vinyl chloride and 40 ug/l 1,2-DCA detected in P-6. This screening value is within the acceptable ELCR range of $1E^{-4}$ to $1E^{-6}$. However, P-6 is not directly downgradient of the Magic Pit and is not directly between the Magic Pit and the CDS property. Additional wells are needed to define the area of groundwater contamination to the west of the Magic Pit, and soil gas samples should be collected between the Magic Pit and the CDS site to confirm if vapor intrusion is a potential issue.

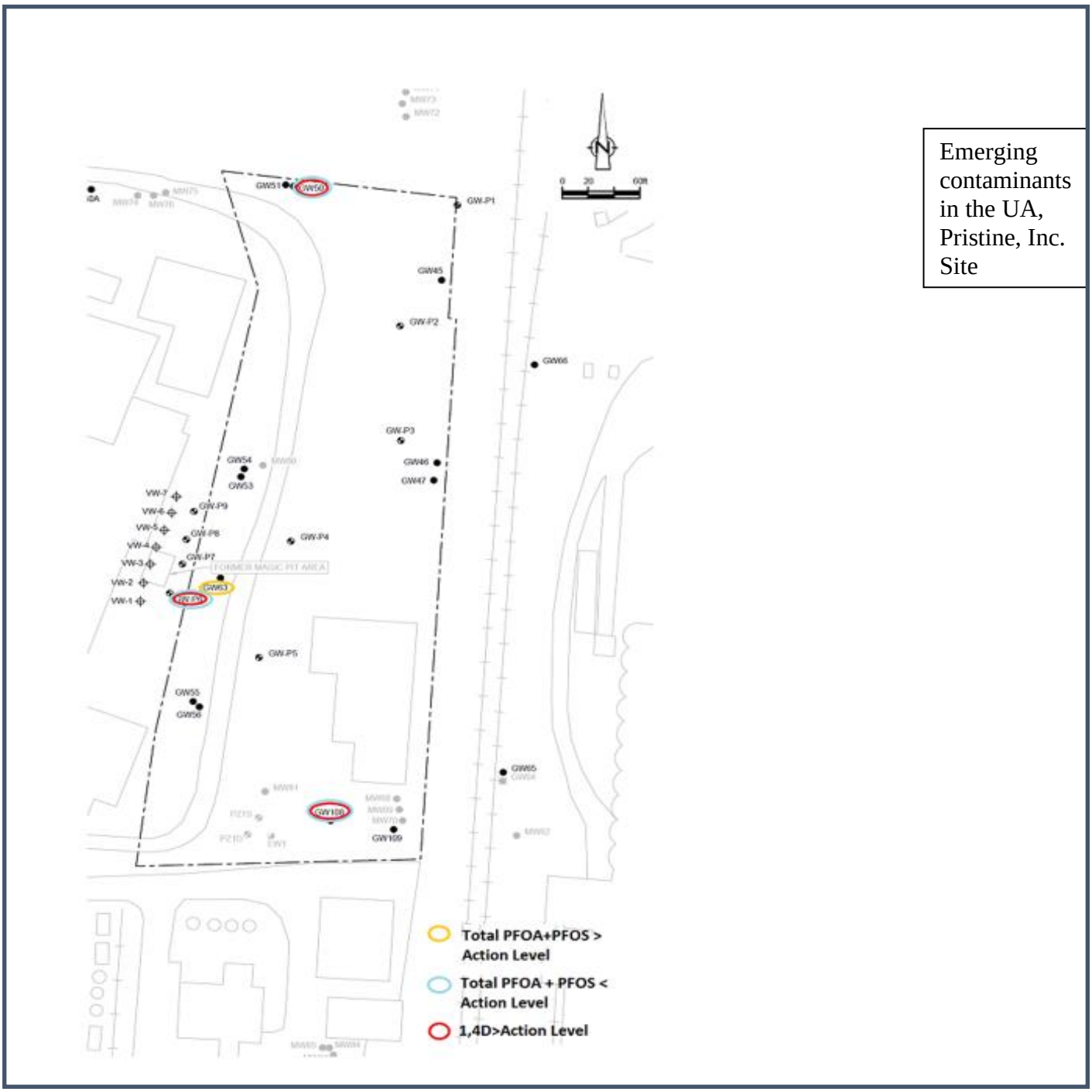
Is groundwater flow and contaminant transport from the source area defined?
The monitoring network in the UA may not be sufficient to evaluate the occurrence or migration of contaminants in groundwater emanating from the Site particularly to the west in the estimated direction of groundwater flow. The relationships and interconnection between the UA and LA are poorly understood. The conceptual Site model needs to be updated and used to identify data gaps in the UA, and effort is needed to evaluate migration pathways from the UA into the LA.

Is additional monitoring for PFAS/1,4-D appropriate?
Two water supply wells to the west-southwest of Pristine, Inc. were sampled for 1,4-D in 2019, and a maximum concentration of 3.5 ug/l of 1,4-D was detected. 1,4-D is also present at other facilities in the region including the GE facility. The reported concentration of 3.5 ug/l 1,4-D is less than the $1E^{-5}$ ELCR of 4.6 ug/l. This concentration of 1,4-D falls within the acceptable risk range, but additional sampling for 1,4-D is recommended to confirm the findings and evaluate trends.

Soil and groundwater sampling results reported in the Pristine 1984 RI (EPA, 1984) indicated 1,1,1-TCA was present in groundwater. 1,4-D is associated with 1,1,1-TCA (EPA, 2017). Because of the presence of 1,1,1-TCA and associated degradation products at the Site, EPA selected a subset of Pristine monitoring wells for PFAS and/or 1,4-D sampling during the 2020 annual sampling event to determine whether these compounds were present at the Site in groundwater. Appendix E includes tabulated results for PFAS and 1,4-D results from analysis of groundwater samples collected in July of 2020. Concentrations of 1,4-D above the Regional Screening Level (RSL) for tap water of 0.46 ug/l (excess lifetime cancer risk =$1E^{-6}$) were detected in the UA and LA at the Site as shown in the following figures.



All three UA wells sampled for 1,4-D had detections exceeding the tap water RSL as shown below.



Emerging contaminants in the UA, Pristine, Inc. Site

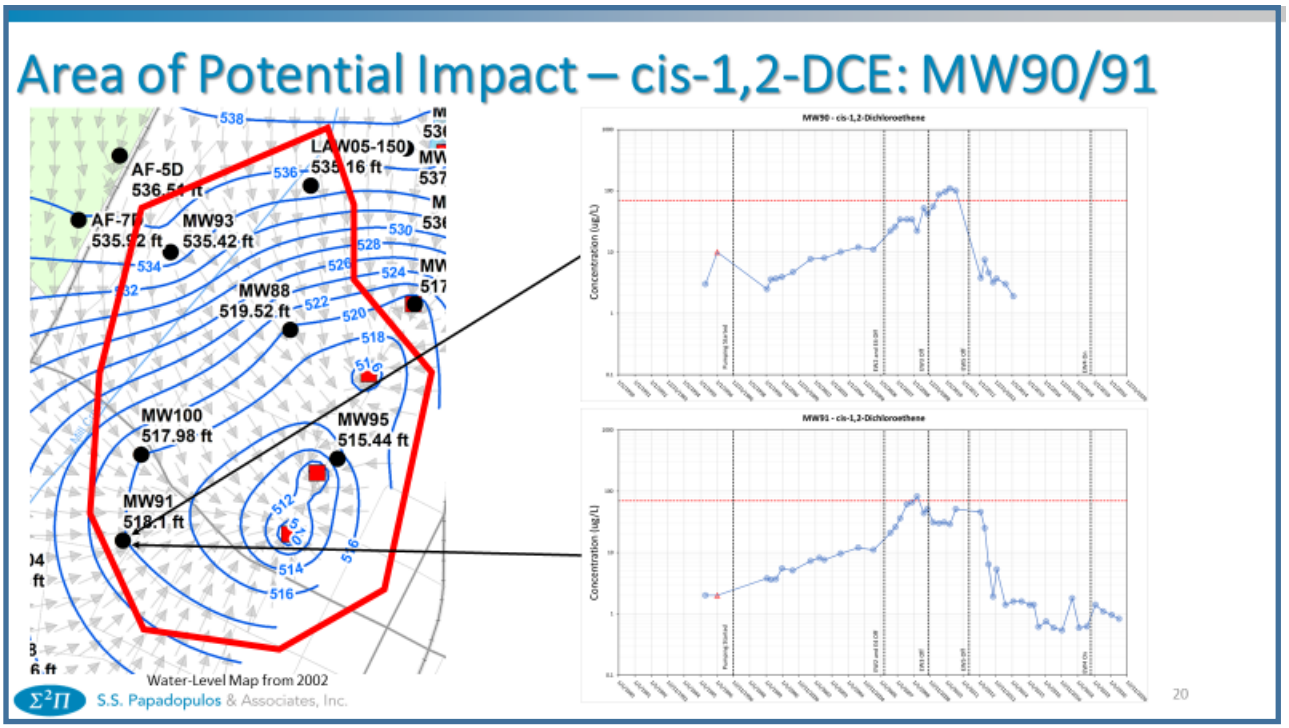
No PFAS compounds were identified in the LA samples above EPA's action level of 70 nanograms per liter (ng/l) total Perfluorooctanoic Acid (PFOA)+ Perfluorooctane Sulfonate (PFOS). However, one of the four groundwater samples collected from the UA contained PFAS compounds above action levels as shown above. Additional sampling of the UA and LA for 1,4-D is needed to confirm the detections, evaluate the extent of contamination, and to begin trend analysis. Additional sampling in the UA is also needed for PFOA and PFOS.

Does regional contamination, particularly the neighboring GE facility, affect the area of Pristine, Inc. groundwater contamination in the LA?

The Pristine Site has used different pumping regimes over the past including operation of all the extraction wells from 1996 to 2006. In 2002, overall pumping rates were reduced in response to a potential for entrainment of contamination from the adjacent GE facility (EPA, 2011) and other potential sources. GE is a source of TCE, cis-1,2-DCE, VC, and other VOCs in a groundwater plume extending beyond its property boundary. Pumping from EW-2 and EW-4 was discontinued in 2006. EW-3 was shut down in 2008, and EW-5 stopped pumping in 2011 as part of the MNA pilot test. In late 2018, EW-4 was restarted. SSPA (2021d) evaluated groundwater flow directions and water quality under the different pumping regimes to determine if contaminated groundwater from the GE property was affecting groundwater quality at Pristine monitoring wells or extraction wells.

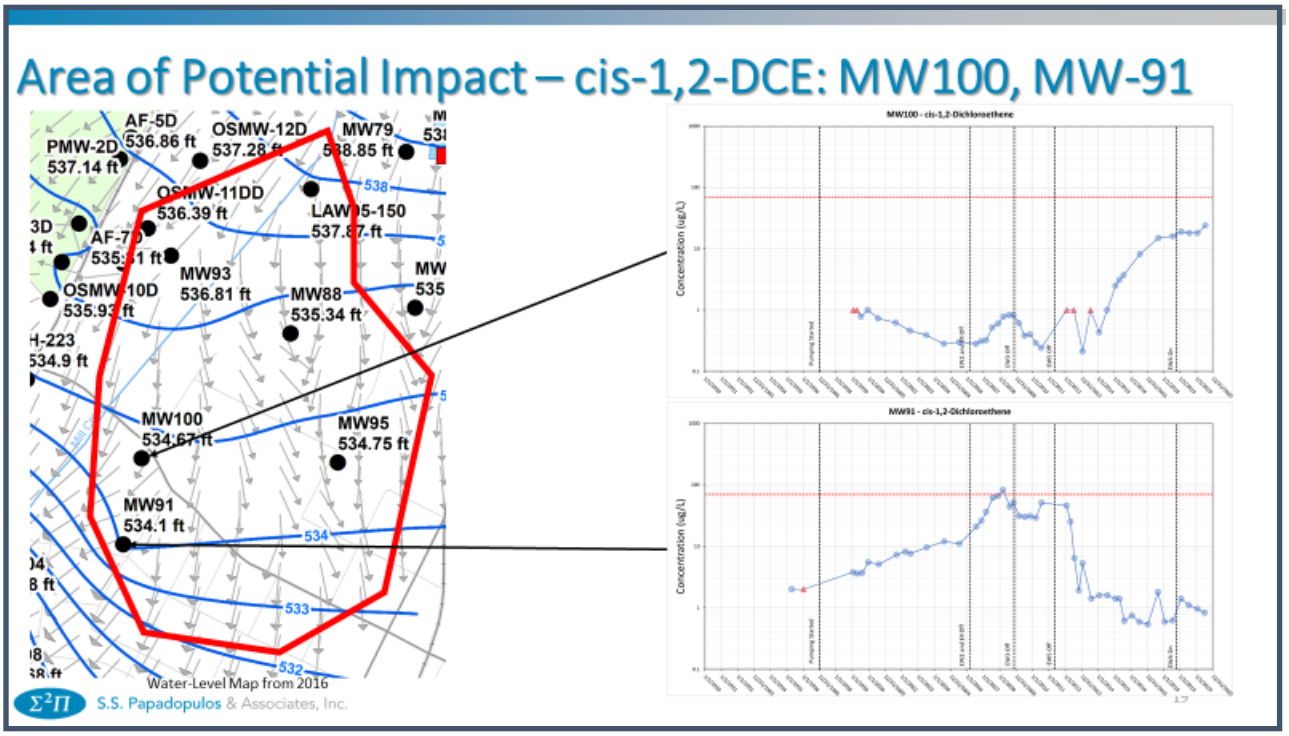
Groundwater flow vector evaluation identified an area where groundwater could flow into the area of the Pristine plume from the GE facility (SSPA, 2021d). The following two figures illustrate this potential area of concern in red with vectors for two pumping scenarios including 2002 and 2016. Also included in the figures are water quality trends for cis-1,2-DCE at two key locations.

The figure below shows 2002 flow vectors (arrows), potential area of concern for contribution from sources other than the Pristine Site (in red) and cis-1,2-DCE water quality information for MW-90/91 (SSPA, 2021d).



It should be noted that TCE, cis-1,2-DCE, and vinyl chloride were present in soil samples collected from the Pristine Site source area during the RI (EPA, 1984). These compounds were also identified in soil during confirmation sampling after ISVE was completed (CRA, 2013). This introduces some uncertainty into the assessment of attribution of contaminant contribution.

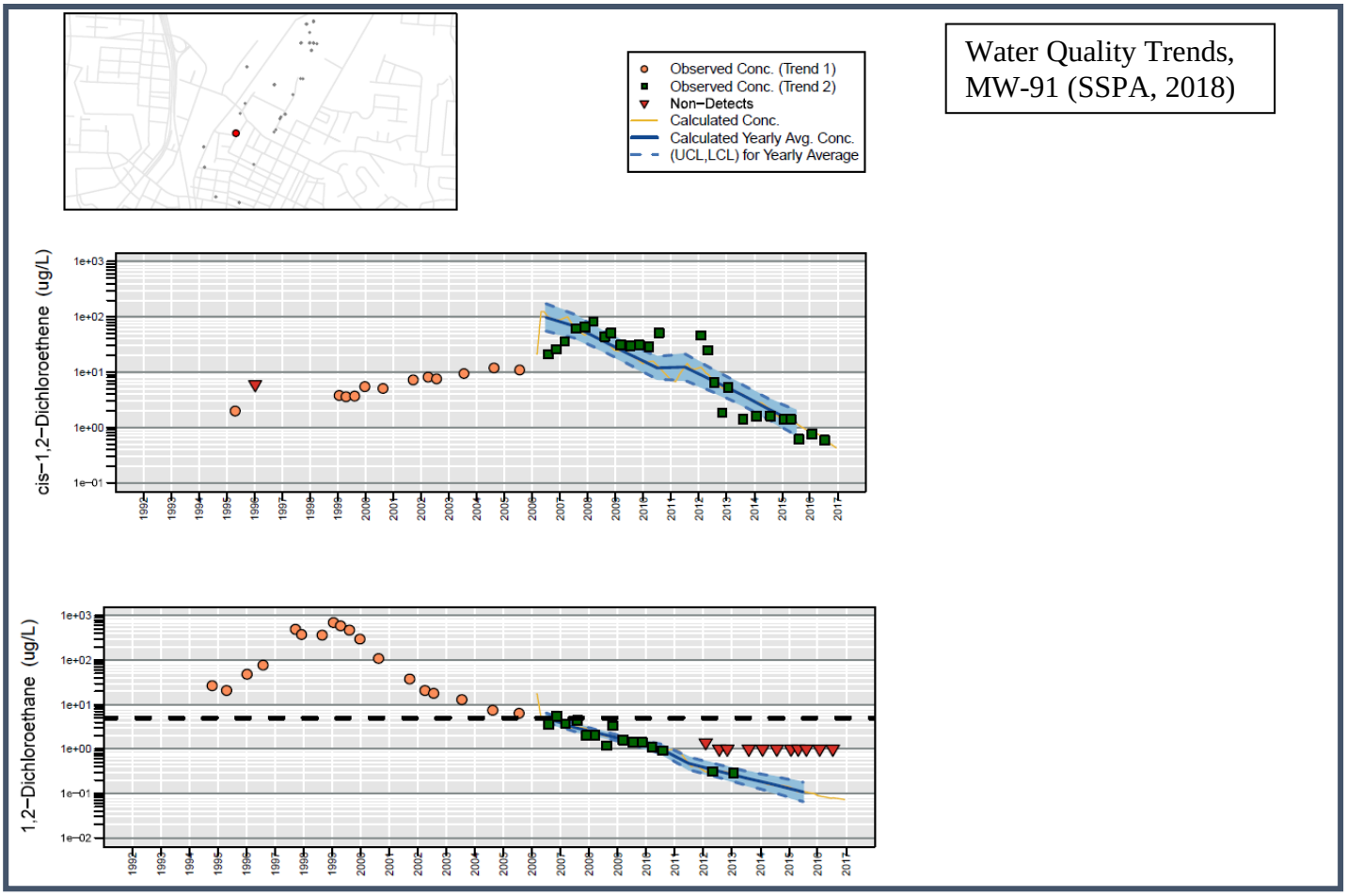
The figure below shows 2016 flow vectors (arrows), potential area of concern for contribution from sources other than the Pristine Site (in red) and cis-1,2-DCE water quality information for MW-100 and MW-91 (SSPA, 2021d).



These figures show that, in 2002 when all extraction wells were pumping, there was flow towards the Pristine Site plume from the west and southwest towards MW-91. Groundwater flow vectors in the vicinity of MW-91 show an easterly component of flow in 2002 that shifted to a southerly component in 2016. Groundwater flow vectors in the vicinity of MW-100 show a southeasterly component of flow while pumping was ongoing that shifted to a southerly flow (from the Pristine, Inc. Site) when pumping was discontinued. These two wells responded differently to the various extraction system configurations.

In the case of MW-100, the shift to a southerly flow direction was noted to be concurrent with increases in contaminant concentrations including cis-1,2-DCE and 1,2-DCA. 1,2-DCA is a contaminant only present within the Pristine, Inc. plume and not attributable to other sources in the area.

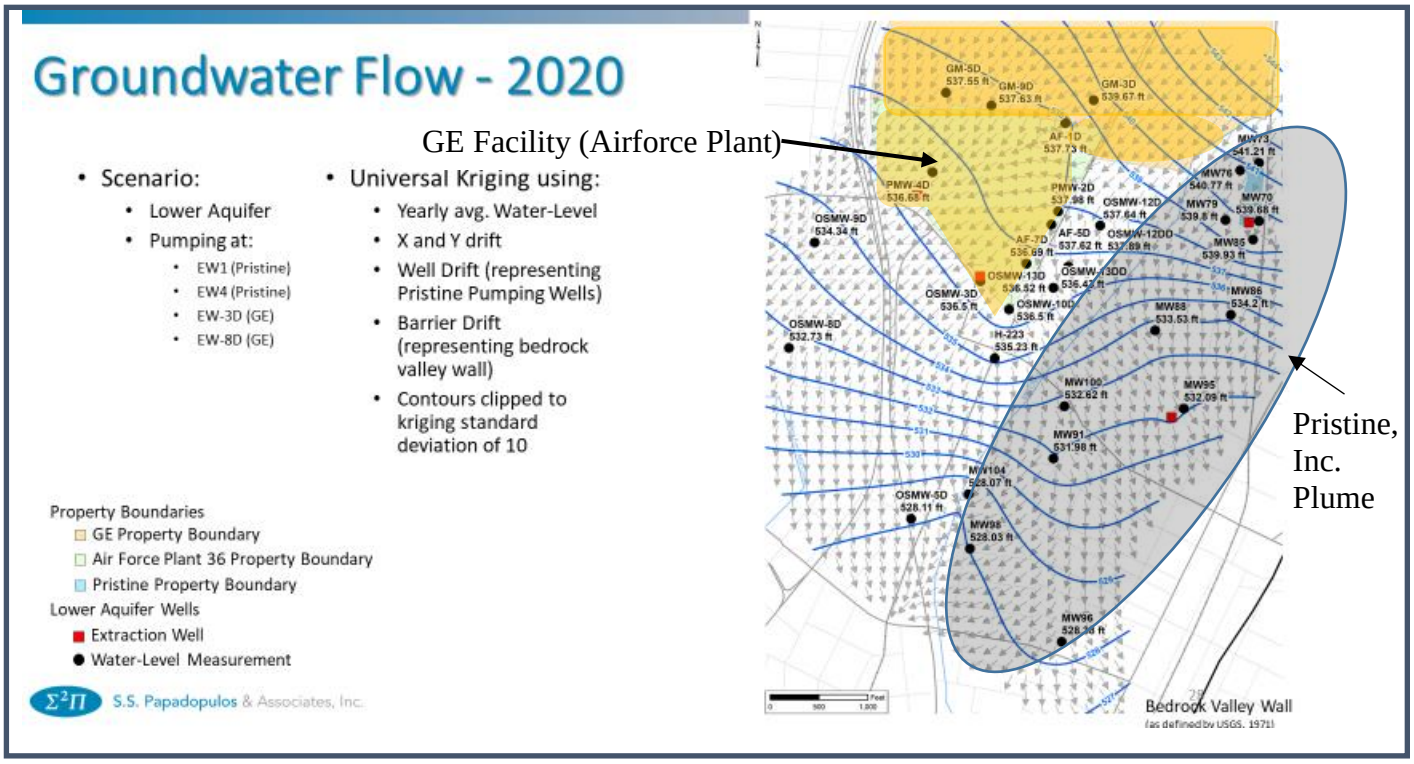
Historical data show 1,2-DCA was present at MW-91 above the MCL before groundwater extraction began. This indicates contamination from the Pristine Site reached MW-91 before commencement of pump and treat. 1,2-DCA at MW-91 decreased to below the MCL as a response to aquifer pumping. At MW-91, concentrations of cis-1,2-DCE below the MCL were present prior to groundwater extraction, and cis-1,2-DCE concentrations increased to above the MCL while all wells were pumping between 2002 and 2011. When pumping discontinued in 2011, cis-1,2-DCE concentrations in this well decreased below the MCL and have remained below the MCL even after pumping at EW-4 was restarted. The figure below illustrates concentrations of cis-1,2 DCE and 1,2-DCA at MW-91 before the extraction system was started extending through 2018.



These water quality trends show MW-91was contaminated by the Pristine Site based on 1,2-DCA concentrations. The cis-1,2-DCE trends may indicate two sources of cis-1,2-DCE including the Pristine Site and another potential site to the west of MW-91. However, the evaluation of water quality and vectors at MW-91 does not show GE contributed contamination to the well, although delineation of the GE plume is incomplete.

None of the other wells at the Pristine Site in the highlighted area of potential impact appear to have been affected by sources other than Pristine, Inc. including the extraction wells.

The effects of groundwater extraction at the GE facility can be seen in the groundwater flow vectors from 2020 (SSPA, 2021d). These vectors show that the GE system is likely currently capturing any contamination that could be migrating towards the Pristine Site. from the GE Airforce Plant facility as shown below.

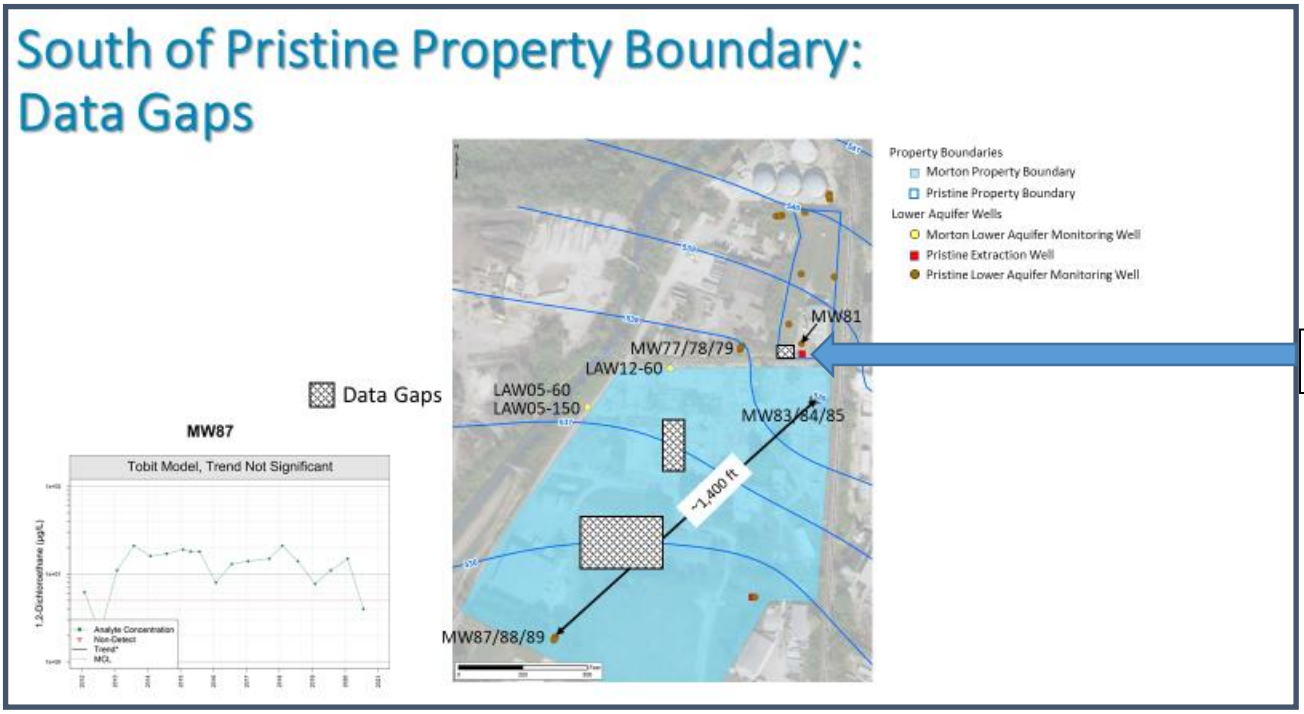


In summary, the contribution of off-site sources to the Pristine, Inc. plume appears to be minimal in the area that was evaluated. There does not appear to be any current contribution to the Pristine, Inc. plume from the GE Airforce Plant 36 property.

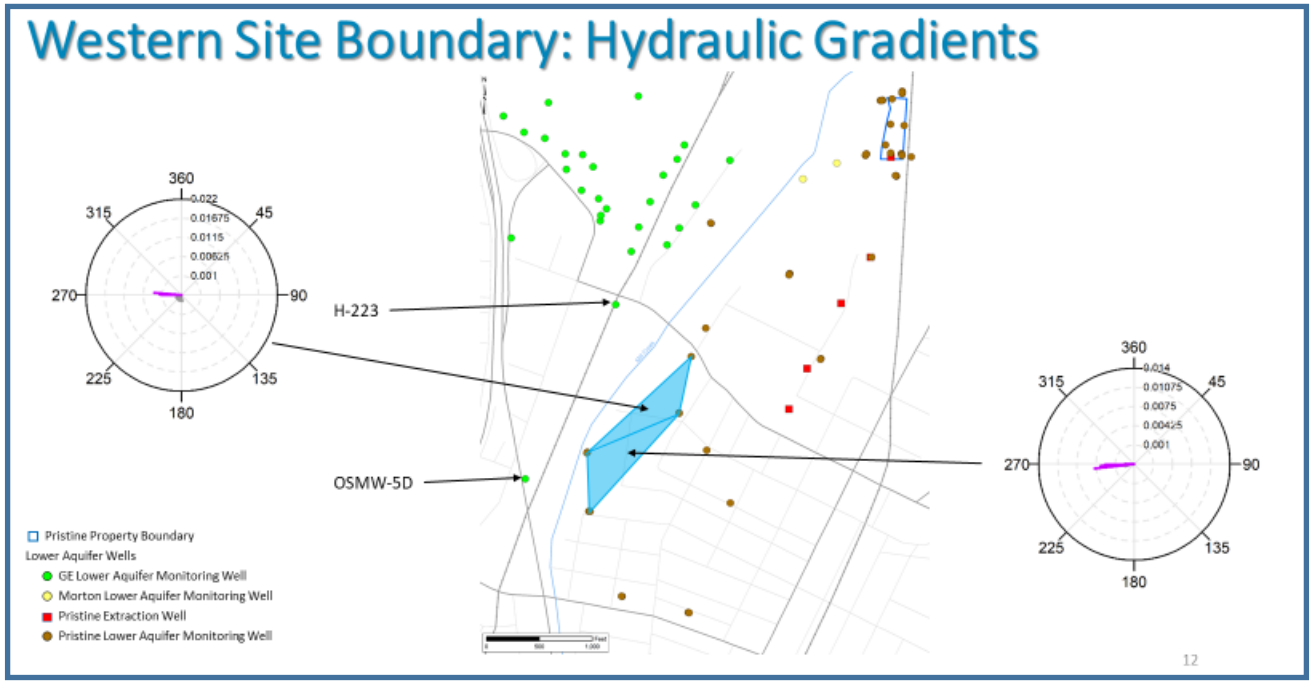
For a limited period of time while all extraction wells were operational, an unidentified potential source to the west of the Pristine, Inc. plume may have contributed cis-1,2-DCE to plume boundary wells, but insufficient data are available to make conclusions regarding contribution attribution and allocation.

Is the LA plume adequately monitored?
The LA monitoring network was evaluated including wells on the GE Facility property to the west of the Site and the former Morton Property due south of the Pristine, Inc. property boundary. The evaluation included a consideration of screened interval elevations and water quality.

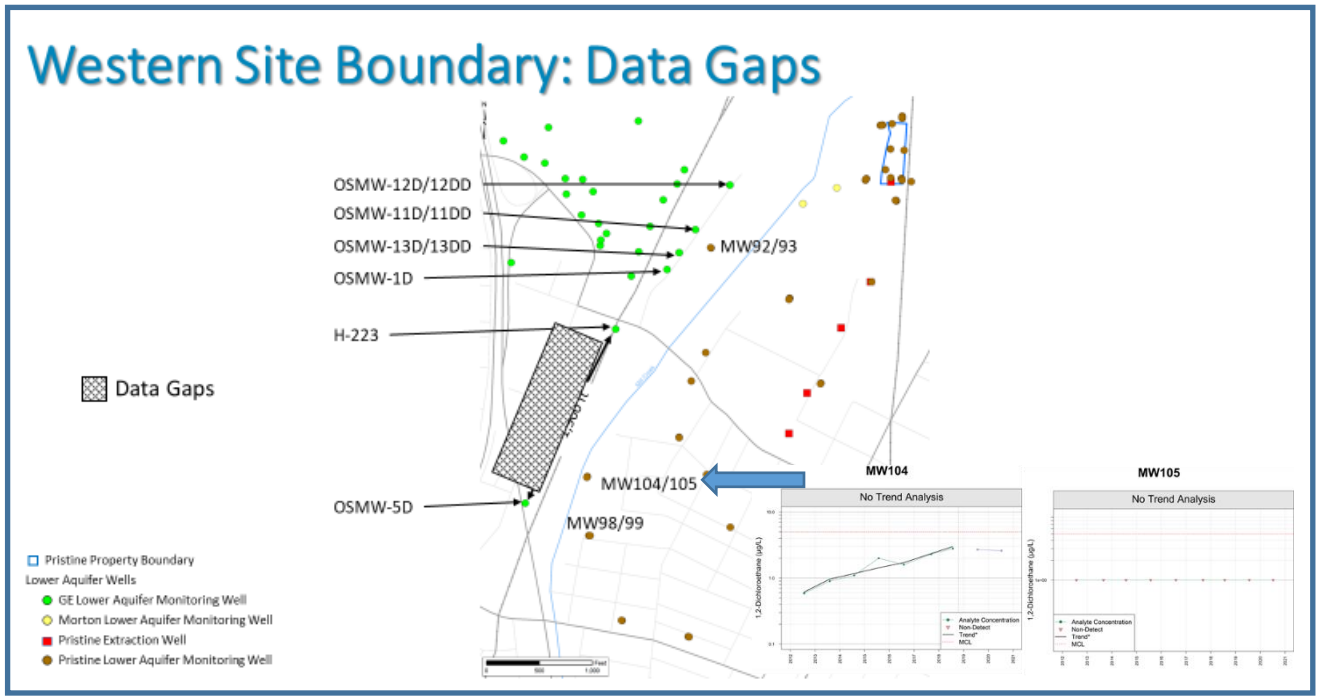
With respect to the area due south of the Pristine Site, a substantial gap in the monitoring network was noted. As previously discussed, water quality trends at MW-87 have not shown a response to pumping at EW-1. However, monitoring between EW-1 and MW-87 is absent and it is unknown how contamination migrates from the Pristine Site property to MW-87. The interconnection between the UA and LA may play a key role in this area. If the distribution of contamination is better understood, remediation could be targeted to address whatever contamination that is escaping EW-1 and affecting MW-87. This could substantially reduce the amount of time required to achieve remedial goals at the Site. A figure illustrating the monitoring network and data gaps due south of the Pristine, Inc. property boundary is shown below (SSPA, 2021c).



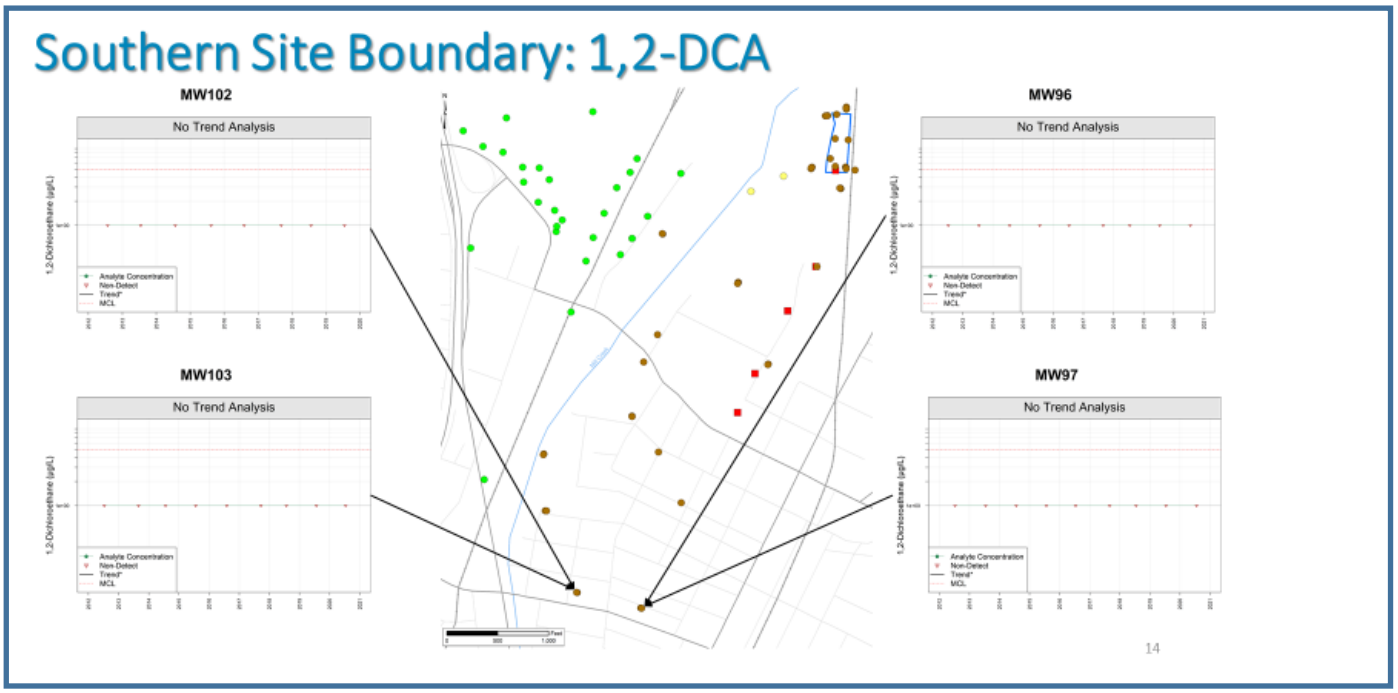
An evaluation of the western boundary of the plume revealed wells owned by GE provide adequate confirmation of the plume boundary along the northern portion of the western plume boundary. However, the monitoring network along the southern portion of the western plume boundary may not be sufficient to detect the presence and migration of contamination from the Pristine Site. The figure below (SSPA, 2021c) shows a western component of flow in an area lacking monitoring points to the west.

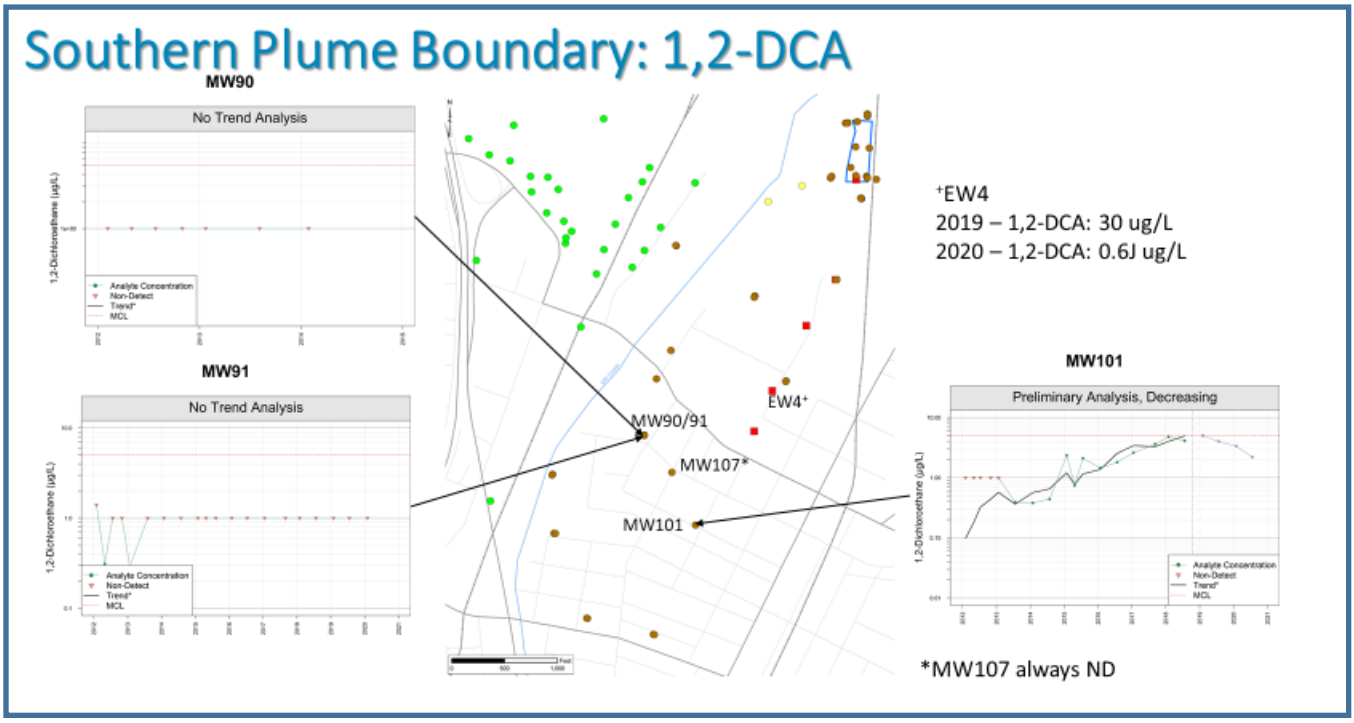


Concentrations of contaminants are becoming a concern at MW-104, and there is a general absence of monitoring wells in this area, as shown below (from SSPA, 2021c).

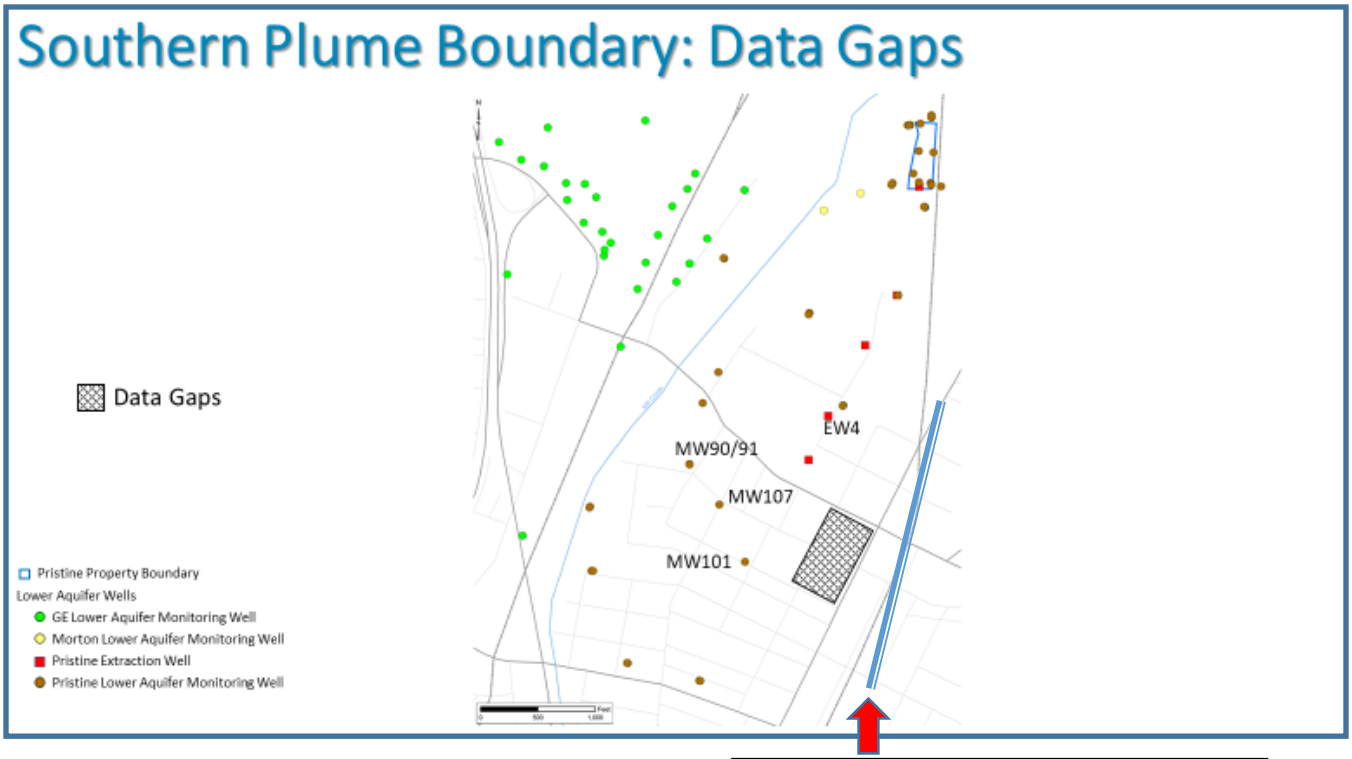


In general, the current monitoring network along the southern LA plume boundary appears adequate for 1,2-DCA, the main contaminant in this area, although most of the wells in this area have not been sampled for 1,4-D. If 1,4-D is not detected in the southern plume boundary wells, there would not be a need to extend the monitoring network to the south. The LA southern monitoring system is shown in two figures below (SSPA, 2021c).





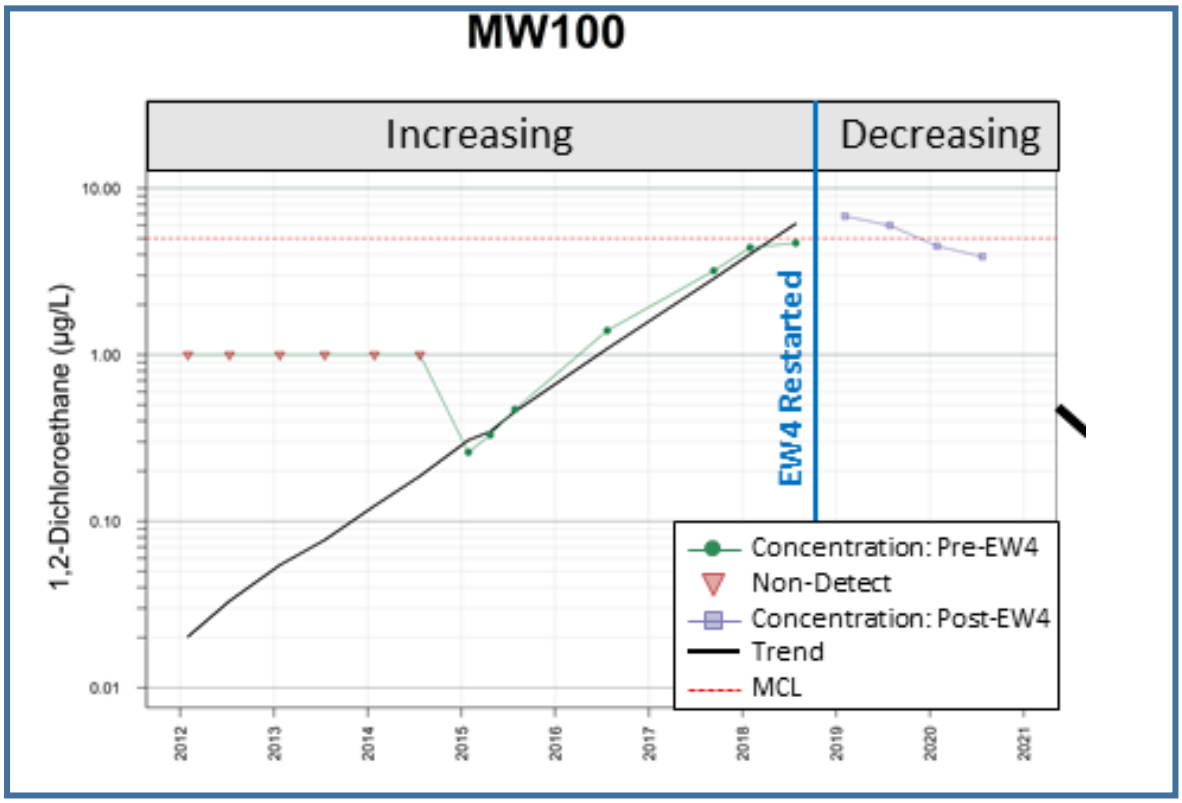
The eastern boundary of contamination near the southern end of the plume needs more definition to confirm the influence of the eastern bedrock wall near MW-101 where increasing trends were noted during the MNA pilot. It is possible that contamination may move towards the bedrock wall and could be funneled along that wall to the south. This data gap area is illustrated below (SSPA, 2021c).



General estimated location of Mill Creek Valley bedrock wall

Other Data Review Findings-MNA Evaluation
During the review period, the Pristine PRPs completed an evaluation of the results of the MNA pilot study at the Site. EPA performed an independent review of the pilot study findings and determined MNA is not currently suitable for the Site based on the current remediation system configuration and the likely presence of a source of groundwater contamination that is not adequately understood or addressed (SSPA, 2018) resulting in an unpredictable time frame required to reach remedial goals.

During the pilot study, the 1,2-DCA concentration in plume boundary well MW-100 increased above the MCL. This well had been below detection limits for all contaminants until the MNA pilot study occurred. Concentrations of 1,2-DCA in other plume boundary wells also began to increase above levels of concern. The pilot study concluded, and EPA requested groundwater extraction at EW-5 be restarted to control the migration of contamination at the plume boundary. In lieu of EW-5, the Pristine PRPs restarted groundwater extraction at EW-4 in September of 2018. Based on water quality data at MW-100, it appears that pumping at EW-4 has improved 1,2-DCA concentrations in groundwater near MW-100, but this should continue to be evaluated over the next several rounds of groundwater sampling. The figure below illustrates 1,2-DCA concentrations at MW-100 during and after the MNA pilot study (SSPA 2021a).

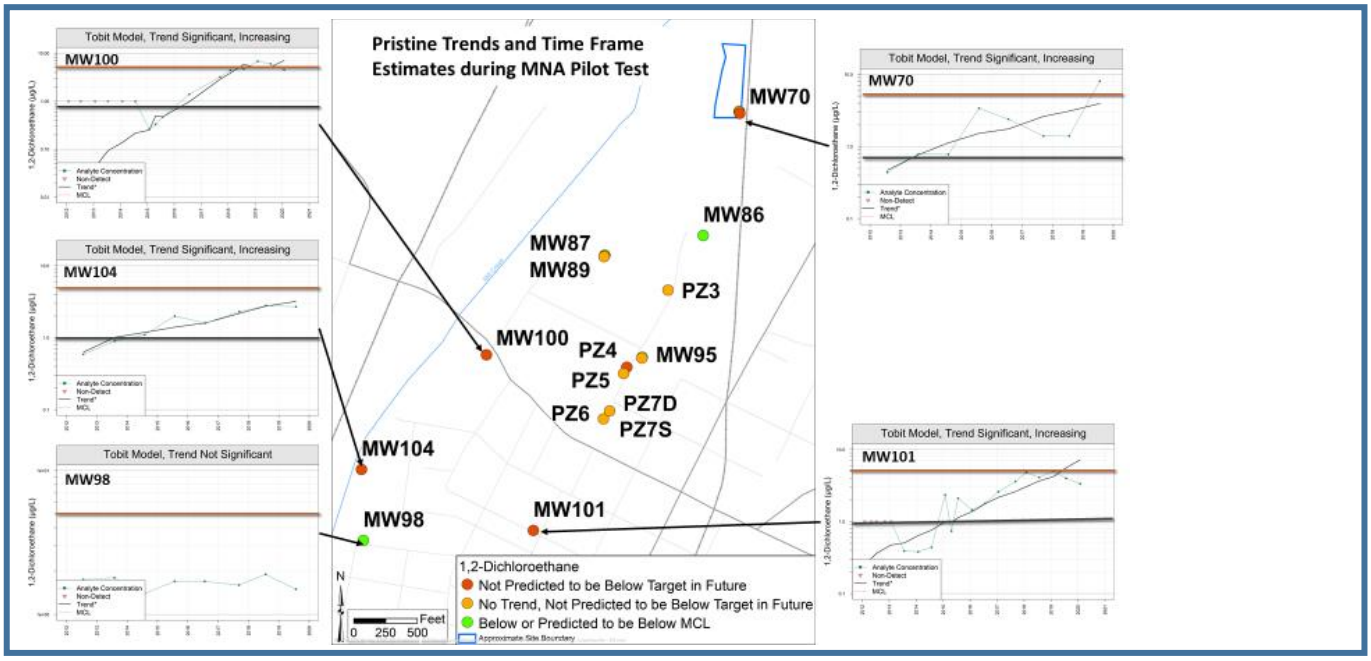


The MNA pilot study was considered viable partly because of a groundwater contaminant transport model included as an attachment to the 2014 Risk Assessment (CRA, 2014) for the Site. The 2014 Risk Assessment was designed to evaluate post-soil remediation conditions to determine if the remedy was protective of human health. The Risk Assessment included a groundwater contaminant transport model to evaluate the effects residual contamination in soil would have on groundwater quality at the Site without additional groundwater extraction or treatment. The model selected a point of compliance beyond the property boundary, contrary to RAOs in the 1987 ROD to return groundwater to beneficial use, including remediation of all groundwater at the Site to MCLs in a reasonable time frame. The ROD

did not select a compliance point for groundwater remediation within or beyond the property boundary. MW-100 was in the point of compliance area used in the model attached to the 2014 Risk Assessment. As has been shown, concentrations of 1,2-DCA increased above the MCL in MW-100 in 2019 during the MNA pilot study. The detection of 1,2-DCA above the MCL in MW-100 does not validate the groundwater contaminant transport model attached to the 2014 Risk Assessment.

A detailed review of the 2014 contaminant transport model attached to the 2014 Risk Assessment identified an approach and assumptions that did not accurately represent 2019 Site conditions, including the following: 1) vadose zone modeling was performed although a percentage of the confirmation samples were likely below the water table after dewatering was discontinued, 2) average rather than hot-spot concentrations were entered into the vadose zone model to predict concentrations of contaminants reaching groundwater, and 3) the model was not used to predict groundwater concentrations below the Site but rather at a distance from the Site.

With respect to groundwater remediation progress and predictions regarding the length of time needed to achieve remedial objectives at the Site, SSPA completed an analysis of LA groundwater quality trends during the MNA evaluation and continuing through the first few sampling events after EW-4 was restarted (SSPA, 2020). MCLs had been achieved at two wells, MW-86 and MW-98. Increasing trends of 1,2-DCA were identified at a number of wells during the MNA period, but concentrations began to decline after groundwater extraction at EW-4 was restarted including MW-100, MW-101, and MW-104. Quite a few wells had highly variable water quality results such that a meaningful water quality trend was not available. This precluded a statistical estimate of the time that would likely be required to achieve MCLs in a number of monitoring wells including MW-87, MW-89, MW-95, PZ-3, PZ-5, PZ-6, PZ-7D, PZ-7S. SSPA inferred these wells would not likely reach MCLs in the foreseeable future. Increasing concentrations of 1,2 DCA were noted at PZ-4. This is likely the result of restarting groundwater extraction at EW-4 and entrainment of a portion of the contaminant plume. The figure below, prepared by SSPA, was presented by EPA on 8/17/2020 to Pristine, Inc. and illustrates 1,2-DCA trends in the LA at the Pristine Site.



Site Inspection

A virtual inspection of the Site was conducted on 12/4/2020. Because of travel restrictions related to COVID-19, the inspection was performed over video using Microsoft Teams in conjunction with time and date-stamped photographs illustrating Site features. Rob Robertson and Henry Cooke (GHD) and Martha Farr (Pristine Trustee) were present at the Site and facilitated sharing live video and photography of Site conditions. In virtual attendance were Judy Canova (EPA), Scott Glum (OEPA), and Ron Pitzer and Peggy Dewan (Pristine PRPs Trustees). The purpose of the inspection was to assess the Site conditions and the protectiveness of the remedy. A report with photographs and a summary of observations during the Site visit is attached in Appendix F. EPA was able to observe all pertinent Site conditions, and a follow-up Site visit to confirm the FYR findings is not warranted.

Generally, the buildings and fencing at the Site were in good condition. Two monitoring wells beyond the Pristine Site property boundary (MW-100 and MW-101) appeared to be damaged. MW-101 was repaired in the weeks following the virtual Site inspection, and MW-100 is scheduled to be replaced because a bladder pump disconnected and became stuck in the well. Vegetation covered most of the capped treated waste disposal area, and the cap did not appear to be breached. No settlement was noted in the vicinity of the cap. Roads at the Pristine Site were in reasonable condition. Observed changes in property use in the vicinity of the Site include demolition of a school building which may have resulted in the observed damage to MW-101. Steps to prevent further damage to monitoring points beyond the Pristine property boundary should be proposed and implemented.

Anticipated future changes to property use in the area include construction of a high-pressure gas line by Duke and redevelopment of the general area by The Port. The gas line construction may temporarily interfere with operation of EW-4.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents? Answer: No.

Question A Summary:

The remedy has not achieved remedial goals in the time frame estimated by the decision documents. Operation of the remediation system has continued successfully with routine maintenance. Based on available information, it appears contamination in the LA is contained by the remediation system, but additional monitoring is needed to confirm the adequacy of the current system. The UA is not adequately delineated and is not contained by the remediation system. Effective ICs are in place to prevent human exposure to contaminants in drinking water. It should be noted that no sensitive populations are present in the immediate area west of the Pristine Site.

Remedial Action Performance

- The groundwater extraction and treatment systems are continuing to operate as designed.
- Since groundwater extraction at EW-4 was restarted after the completion of the MNA pilot test, it appears that containment of the LA plume is successful. Additional groundwater monitoring is recommended to confirm plume containment in the LA.
- The sole extraction well in the UA is insufficient to effectively contain the UA plume.

- Although cleanup goals have been met at a few LA wells, the predicted time to reach remedial goals in the UA and LA substantially exceeds the expectation in the 1987 ROD. An evaluation of Site conditions suggests a source of contamination remains in the UA that is not addressed by the current remediation system. Monitoring of occurrence and migration of contamination in the UA needs to be improved.
- Evaluation and remediation of any potential remaining source of contamination at the Site would improve performance of the groundwater remedy and would substantially reduce the amount of time and funding required to achieve remedial goals at the Site.
- If new areas of interconnections between the UA and LA are identified, they may be leveraged to control the release of contaminated groundwater to the LA and could reduce the amount of time required to achieve remedial goals.

System Operations/O&M

- With ongoing maintenance and updating, the current extraction and treatment systems will continue to be effective at containing the LA plume provided additional monitoring proposed to address LA plume data gaps does not bring the plume boundary location into question.
- The system will need to be modified to address residual contamination in the UA, if identified, as the capture zone for extraction well GW-108 is inadequate to address the UA.

Implementation of Institutional Controls and Other Measures

- ICs are in place and are proving to be effective in preventing exposure.
- Access controls are present at the Site including fencing, warning signs, and a security system, and these controls are effective in preventing exposure. Pristine trustees report on ICs to EPA on an annual basis. However, the IC Action Plan should be updated to fully address long term stewardship procedures and finalized for the Site to ensure ICs continue to be properly maintained and reported.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and Remedial Action Objectives (RAOs) used at the time of the remedy selection still valid? Answer: No

Question B Summary:

The 1987 ROD selected MCLs as cleanup goals for contaminants in groundwater. The 2011 ESD also selected MCLs as cleanup goals for groundwater in addition to RSLs or Action Levels for contaminants with no MCLs. The 2011 ESD did not identify cleanup goals for 1,4-D or PFOA/PFOS as these are emerging contaminants of concern. The 2011 ESD eliminated individual clean-up goals for soil and stated the cumulative ELCR for human exposure to soil should not exceed 10^{-5}. However, the ESD did not specifically address soil leachability or soil remediation criteria to protect groundwater and to enable attainment of the groundwater cleanup goals. Remediation goals for soil to protect groundwater quality need to be developed for the Site to determine if the current soil remedy is protective of the environment.

1,4-D and PFOA/PFOS have been identified at the Site and further investigation is needed regarding the extent and trends of 1,4-D in the LA. Additional evaluation of PFOA/PFOS in the UA is needed.

Soil cleanup goals to protect groundwater quality should be established for the Site and included in a future decision document if needed.

Changes in Exposure Pathways

- Sampling for 1,4-D and PFAS was conducted in 2020. 1,4-D has been identified above the tapwater RSL (0.46 ug/l based on an ELCR of $1E^{-6}$) at other facilities in the area and in two municipal wells to the southwest of the Site. Concentrations of 1,4-D above the RSL for tap water were detected in the UA and LA at the Site, but the 1,4-D concentrations detected at the Pristine site and at the municipal wellfield southwest of the Site do not exceed the acceptable risk of $1E^{-5}$ ELCR. No PFAS compounds were identified in the LA samples above EPA's action level of 70 ng/l total PFOA + PFOS (PFAS). However, one of the four groundwater samples collected from the UA contained PFAS compounds above action levels. The UA is not used as a source of drinking water, but PFAS compounds could migrate from the UA to the LA. Additional sampling is needed to evaluate the occurrence and trends of these contaminants at the Site.
- The contaminant transport model attached to the 2014 Risk Assessment was reviewed and compared to current available site-specific water quality data. The model underpredicted the impact residual soil contamination would have on Site groundwater quality.
- A potential westward groundwater flow direction has been identified for the UA groundwater. The westward extent of groundwater contamination in the UA has not been defined. If contamination present in the UA is moving westward, there may be a vapor intrusion concern for the adjacent former CDS property. Available water quality data for the groundwater monitoring point screened above the surficial clay closest to the CDS property do not exceed the acceptable ELCR risk range of $1E^{-4}$ to $1E^{-6}$ for commercial worker exposure to contaminants in vapors based on VISL screening.
- Soil samples collected after Site remediation near the Magic Pit and the CDS property contain contaminants that may partition to soil gas.
- Collection of soil gas samples and installation and sampling of monitoring points between the Magic Pit and the CDS property are needed to evaluate potential westward migration of contamination in soil vapor and groundwater and to confirm the current remedy protectiveness.

Expected Progress Towards Meeting RAOs

- The time required to achieve remedial goals (MCLs) in portions of the LA cannot be predicted. Although there has been progress in some areas, the amount of time required to achieve MCLs throughout the LA is unknown and exceeds the time predicted by the ROD.
- 1,4-D and PFOA/PFOS have been detected at the Site. Further evaluation is needed to determine the significance of these detections and whether RAOs can be met at the Site.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy? Answer: No. The Site has not been impacted by any natural disaster and has no new climate change vulnerabilities. No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None

Issues and Recommendations Identified in the Five-Year Review:				
OU(s): 1 (Sitewide)	**Issue Category: Monitoring**			
	Issue: UA Monitoring Wells Missing or Damaged.			
	Recommendation: Evaluate UA to determine where monitoring points are needed to confirm remediation effectiveness. Install and sample UA wells to address data gaps.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	**Issue Category: Monitoring**			
	Issue: Monitoring Wells Beyond Property Boundary Damaged.			
	Recommendation: Repair or replace damaged wells. Evaluate, propose, and implement alternatives to protect monitoring well integrity for wells located outside the property boundary.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	**Issue Category: Monitoring**			
	Issue: Data Gaps in the UA.			
	Recommendation: Update the conceptual site model (CSM) to identify data gaps that should be addressed to complete the delineation of contamination in the UA, migration pathways in the UA and between the UA and the LA, and the potential for receptors to be exposed to contamination migrating within the UA.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	Issue Category: Monitoring			
	Issue: 1,4-D identified in Site groundwater.			
	Recommendation: Expand sampling effort to confirm the detections of 1,4-D, determine the nature and extent of 1,4-D contamination in the UA and LA, and to evaluate water quality trends.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	9/30/2022

OU(s): 1 (Sitewide)	Issue Category: Monitoring			
	Issue: PFOA/PFOS Identified in UA above Action Levels; extent of contamination unknown.			
	Recommendation: After additional Site characterization has been completed in the UA, select additional wells for PFOA/PFOS sampling to determine the nature and extent of contamination.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	6/30/2023

OU(s): 1 (Sitewide)	Issue Category: Monitoring			
	Issue: Groundwater flow direction in UA unknown.			
	Recommendation: Install monitoring wells in the UA to evaluate groundwater flow direction.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	Issue Category: Monitoring
	Issue: Residual soil contamination is present near the Magic Pit. Soil gas concentrations adjacent to CDS property are unknown.
	Recommendation: Collect soil gas samples between the Magic Pit and the CDS site to evaluate potential VI issues.

Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	Issue Category: Monitoring			
	Issue: LA plume boundary and plume core data gaps result in uncertainty regarding remedy effectiveness and plume containment.			
	Recommendation: Install and sample monitoring wells at the plume core and plume boundary to improve understanding of contaminant migration within the plume and containment at the plume boundary.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	Issue Category: Monitoring			
	Issue: Key monitoring points missing.			
	Recommendation: Replace key monitoring points to evaluate current water quality data and confirm if high concentrations remain in the Upper Aquifer.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	Issue Category: Remedy Performance			
	Issue: GW-108 (UA Extraction well) not capturing contamination in the UA.			
	Recommendation: Discontinue pumping GW-108 and monitor changes in water quality. Identify other locations and opportunities to capture UA contamination.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	11/30/2021

OU(s): 1 (Sitewide)	Issue Category: Remedy Performance
	Issue: A source area may remain at the site.

	Recommendation: Evaluate potential presence of residual source material in the vadose zone of the source area and in the UA. Define the horizontal and vertical extent of potential soil hot spots identified by VLEACH (SSPA, 2020). Collect additional soil and groundwater data under the Magic Pit including site contaminants of concern and emerging contaminants. Evaluate collective dataset to determine if a source area remains. If source areas are identified, evaluate methods to contain or treat hot spots or residual source material.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	7/29/2022

OU(s): 1 (Sitewide)	**Issue Category: Remedy Performance**			
	Issue: UA contamination may bypass Extraction Wells.			
	Recommendation: Evaluate UA interaction with LA to determine where extraction wells or treatment may be needed to contain or treat UA contamination and where additional LA extraction wells may be needed.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	9/30/2022

OU(s): 1 (Sitewide)	**Issue Category: Changed Site Conditions**			
	Issue: Site water quality data do not agree with predicted groundwater quality based on contamination transport model used in the 2014 Risk Assessment. Conclusions of protection of human health for soil leaching to groundwater based on the Risk Assessment modeling are incorrect.			
	Recommendation: Update the 2014 Risk Assessment to include soil clean-up levels to protect human health based on soil leaching to groundwater. The intention of the update would be to prevent groundwater from exceeding cleanup standards at the property boundary to protect potential future receptors.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	**Issue Category: Changed Site Conditions**
	Issue: Potential VI concern to the west of the Magic Pit.

	Recommendation: Identify the use conditions at the offsite buildings to evaluate more effectively potential VI exposures. Collect soil, groundwater and soil gas data and address data gaps near and under the Magic Pit and the adjacent offsite buildings to facilitate a VI evaluation.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	8/31/2022

OU(s): 1 (Sitewide)	**Issue Category: Changed Site Conditions**			
	Issue: Proposed construction of a high-pressure gas line under the EW-4 control and conveyance system.			
	Recommendation: Regular interaction during Duke project planning and daily monitoring of construction activities while in the vicinity of EW-4.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	4/28/2023

OU(s): 1 (Sitewide)	**Issue Category: Institutional Controls**			
	Issue: Comprehensive long term stewardship procedures need to be memorialized in the IC Action Plan and IC reporting should include the CDS property.			
	Recommendation: The IC Action Plan should be updated to fully address long term stewardship procedures and finalized for the Site to ensure ICs are properly maintained and enforced. Annual reporting regarding compliance with the objectives of the ICs should include both the Pristine, Inc. Site and the adjacent CDS property.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	12/31/2021

VII. PROTECTIVENESS STATEMENT

OU1 and Sitewide Protectiveness Statement(s)

Protectiveness Determination:
Short-term Protective

Protectiveness Statement:

The remedy at the Pristine Site currently protects human health and the environment because direct human exposure to soil is controlled and the migration of groundwater contamination in the LA is controlled by the current extraction system. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness:

1. Evaluate UA to determine where monitoring points are needed to confirm remediation effectiveness. Install and sample UA wells to address data gaps.
2. Repair or replace damaged wells. Evaluate, propose, and implement alternatives to protect monitoring well integrity for wells located outside the property boundary.
3. Update the conceptual site model (CSM) to identify data gaps that should be addressed to complete the delineation of contamination in the UA, migration pathways in the UA and between the UA and the LA, and the potential for receptors to be exposed to contamination migrating within the UA.
4. Expand sampling effort to confirm the detections of 1,4-D, determine the nature and extent of 1,4-D contamination in the UA and LA, and to evaluate water quality trends.
5. After additional Site characterization has been completed in the UA, select additional wells for PFOA/PFOS sampling to determine the nature and extent of contamination.
6. Install monitoring wells in the UA to evaluate groundwater flow direction.
7. Collect soil gas samples between the Magic Pit and the CDS site to evaluate potential VI issues.
8. Install and sample monitoring wells at the plume core and plume boundary to improve understanding of contaminant migration within the plume and containment at the plume boundary.
9. Replace key monitoring points to evaluate current water quality data and confirm if high concentrations remain in the Upper Aquifer.
10. Discontinue pumping GW-108 and monitor changes in water quality. Identify other locations and opportunities to capture UA contamination.
11. Evaluate potential presence of residual source material in the vadose zone of the source area and in the UA. Define the horizontal and vertical extent of potential soil hot spots identified by VLEACH (SSPA, 2020). Collect additional soil and groundwater data under the Magic Pit including site contaminants of concern and emerging contaminants. Evaluate collective dataset to determine if a source area remains. If source areas are identified, evaluate methods to contain or treat hot spots or residual source material.
12. Evaluate UA interaction with LA to determine where extraction wells or treatment may be needed to contain or treat UA contamination and where additional LA extraction wells may be needed.
13. Update the 2014 Risk Assessment to include soil clean-up levels to protect human health based on soil leaching to groundwater. The intention of the update would be to prevent groundwater from exceeding cleanup standards at the property boundary to protect potential future receptors.

14. Identify the use conditions at the offsite buildings to evaluate more effectively potential VI exposures. Collect soil, groundwater and soil gas data and address data gaps near and under the Magic Pit and the adjacent offsite buildings to facilitate a VI evaluation.
15. Regular interaction during Duke project planning and daily monitoring of construction activities while in the vicinity of EW-4.
16. The IC Action Plan should be updated to fully address long term stewardship procedures and finalized for the Site to ensure ICs are properly maintained and enforced. Annual reporting regarding compliance with the objectives of the ICs should include both the Pristine, Inc. Site and the adjacent CDS property.

VIII. NEXT REVIEW

The next FYR report for the Pristine, Inc. Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

2009 Environmental Covenant. SEMS ID 339991

CRA, 2013. *Post-ISVE Sampling and Analysis Report, Pristine, Inc. Site*. SEMS ID 949513

CRA, 2014. *Human Health Risk Assessment Report, Pristine, Inc. Site.* SEMS ID 953032

EPA, 1984. *Final Remedial Investigation Report, Pristine, Inc. Site*. SEMS ID 223796

EPA, 1987. *Addendum to the Remedial Investigation Report.* SEMS ID 223911

EPA, 1987. *Record of Decision.* SEMS ID 205528

EPA, 1990. *Record of Decision Amendment.* SEMS ID 205527

EPA, 1993. *Explanation of Significant Difference.* SEMS ID 223936

EPA, 1996. *Explanation of Significant Difference.* SEMS ID 223960

EPA, 1998. *Preliminary Close-out Report.* SEMS ID 409003

EPA, 2011. *Explanation of Significant Difference.* SEMS ID 402332

EPA, 2017. *1,4-Dioxane Technical Fact Sheet.* EPA 505-F-17-011

EPA, 2020. *Pristine, Inc. Meeting: Path Forward* August 2020. SEMS ID 962815

GHD, 2017. *Monitored Natural Attenuation (MNA) Pilot Program Performance Data Evaluation Report* April 2017. SEMS ID 952629

GHD, 2019. *Conceptual Site Model Preliminary Report* March 2019. SEMS ID 952160

GHD, 2020. *2020 Annual Assessment of Pristine, Inc. Site Institutional Controls/Communication Plan* November 12, 2020. SEMS ID 962803

GHD, 2021. *2020 Operation and Maintenance Annual Report* February 2021. SEMS ID 961883

Long, Jeffrey, 2021. *Environmental Covenant Check-in* Email to EPA, February 15, 2021. SEMS ID 965714

SSPA, 2018. *Evaluation of Monitored Natural Attenuation* February 2018. SEMS ID 961884

SSPA, 2019. *Evaluation of EW-4 Pumping and Source Control* October 2019. SEMS ID 952643

SSPA, 2020a. *Comments on CRA's HHRA Appendix D* June 2020. SEMS ID 962818

SSPA, 2020b. *Evaluation of Pumping Well GW-108* November 2020. SEMS ID 964869

SSPA, 2021a. *Evaluation of Impact of Reactivation of EW4* February 2021. SEMS ID 961885

SSPA, 2021b. *Evaluation of Capture of EW-1* February 2021. SEMS ID 961886

SSPA, 2021c. *Evaluation of Lower Aquifer Monitoring Network: Pristine, Inc. Superfund Site* March 2021. SEMS ID 961887

SSPA, 2021d. *Evaluation of Regional Contamination* March 2021, SEMS ID 965295

APPENDIX B

Pristine Site Maps

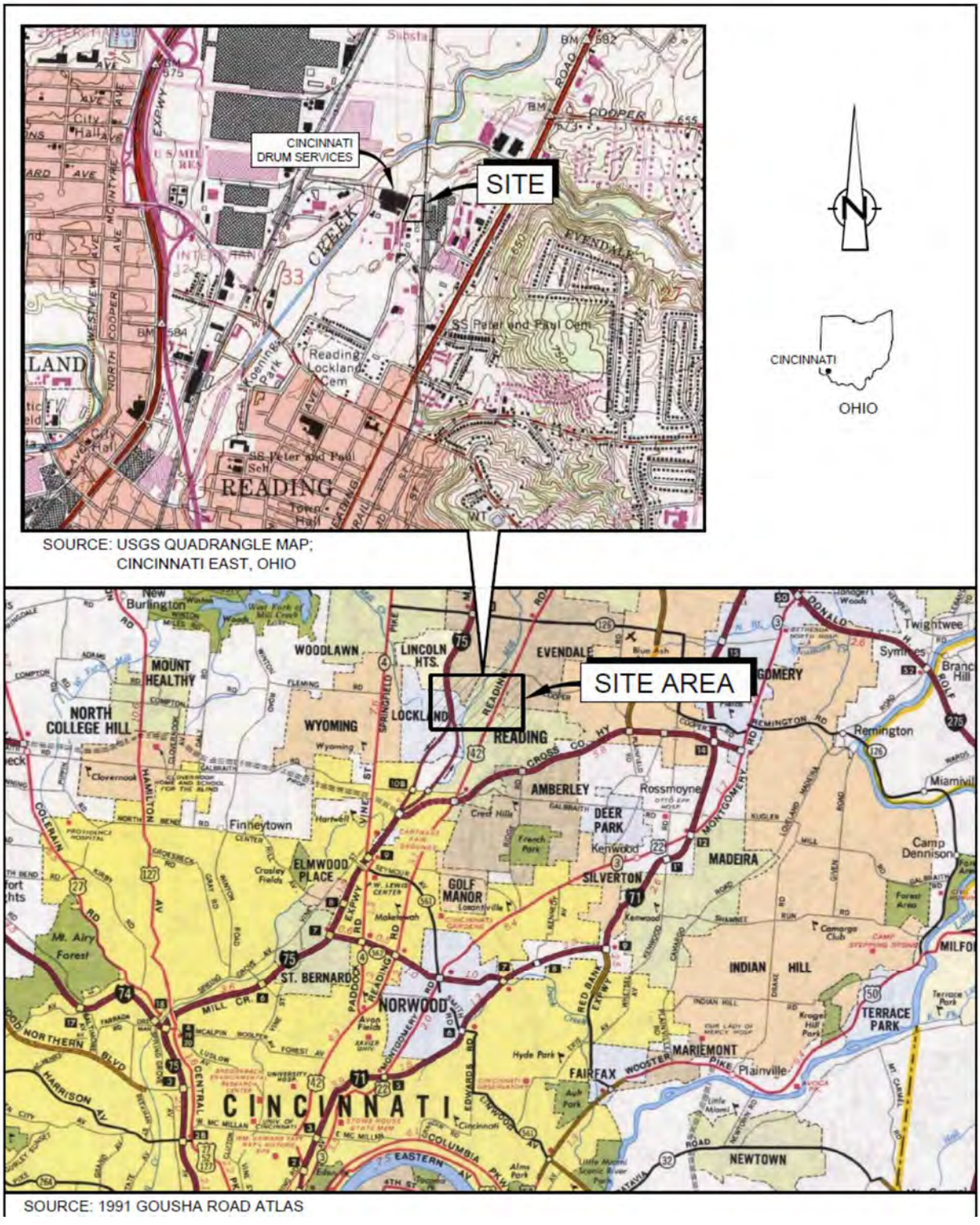


Figure 1: Pristine Site General Location

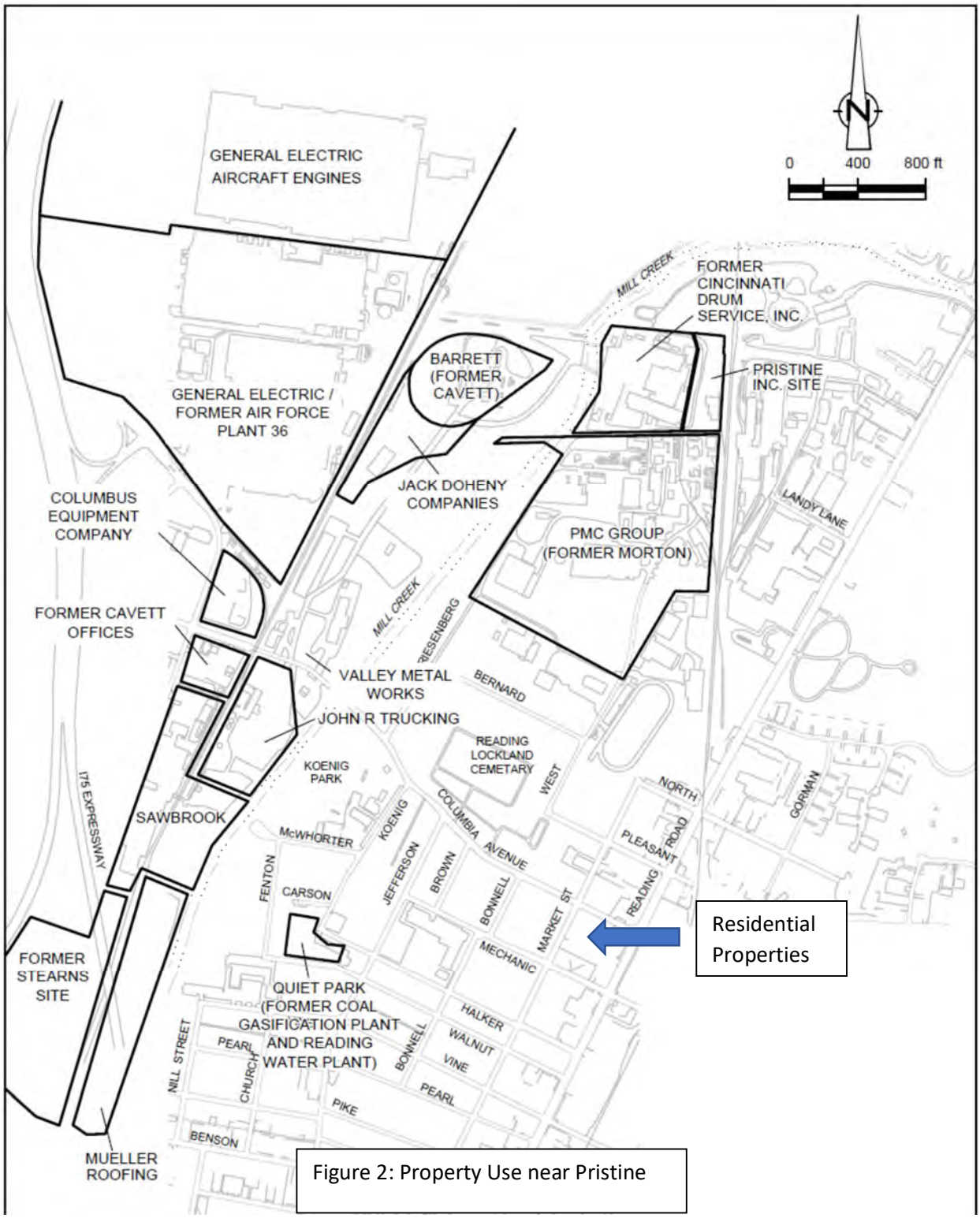


Figure 2: Property Use near Pristine

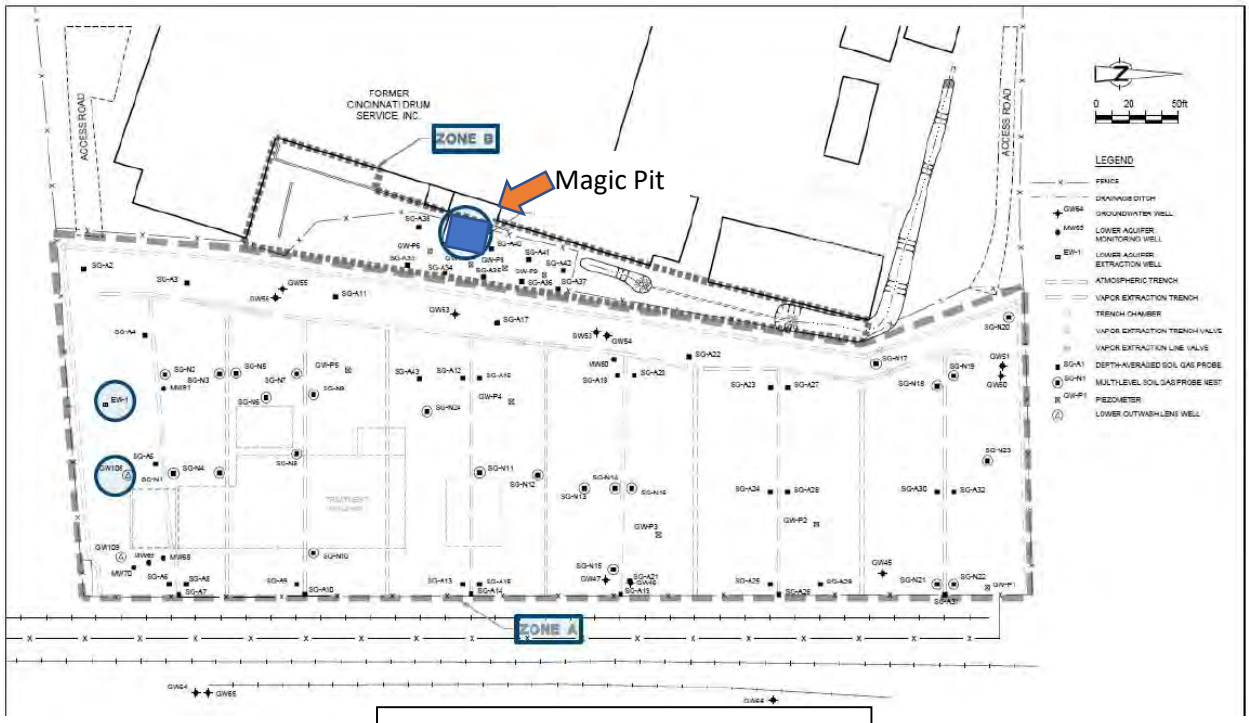


Figure 3: Pristine Property Features

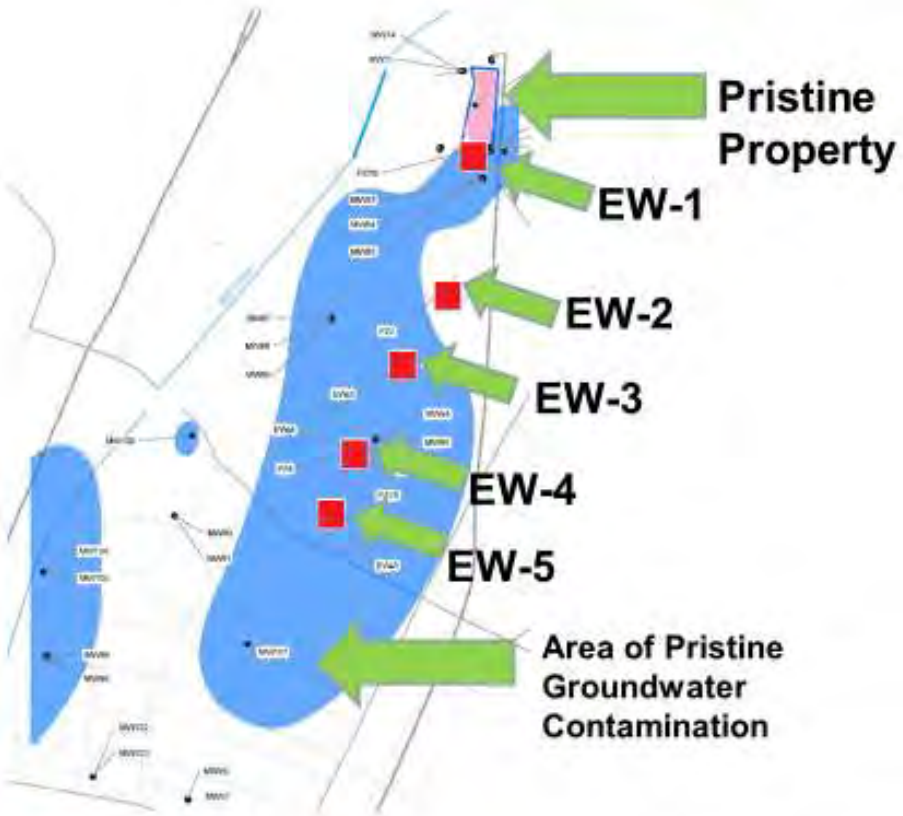


Figure 4: Pristine Area of Groundwater Contamination showing Lower Aquifer Extraction Wells (EW) (modified from SSP&A, 2018)

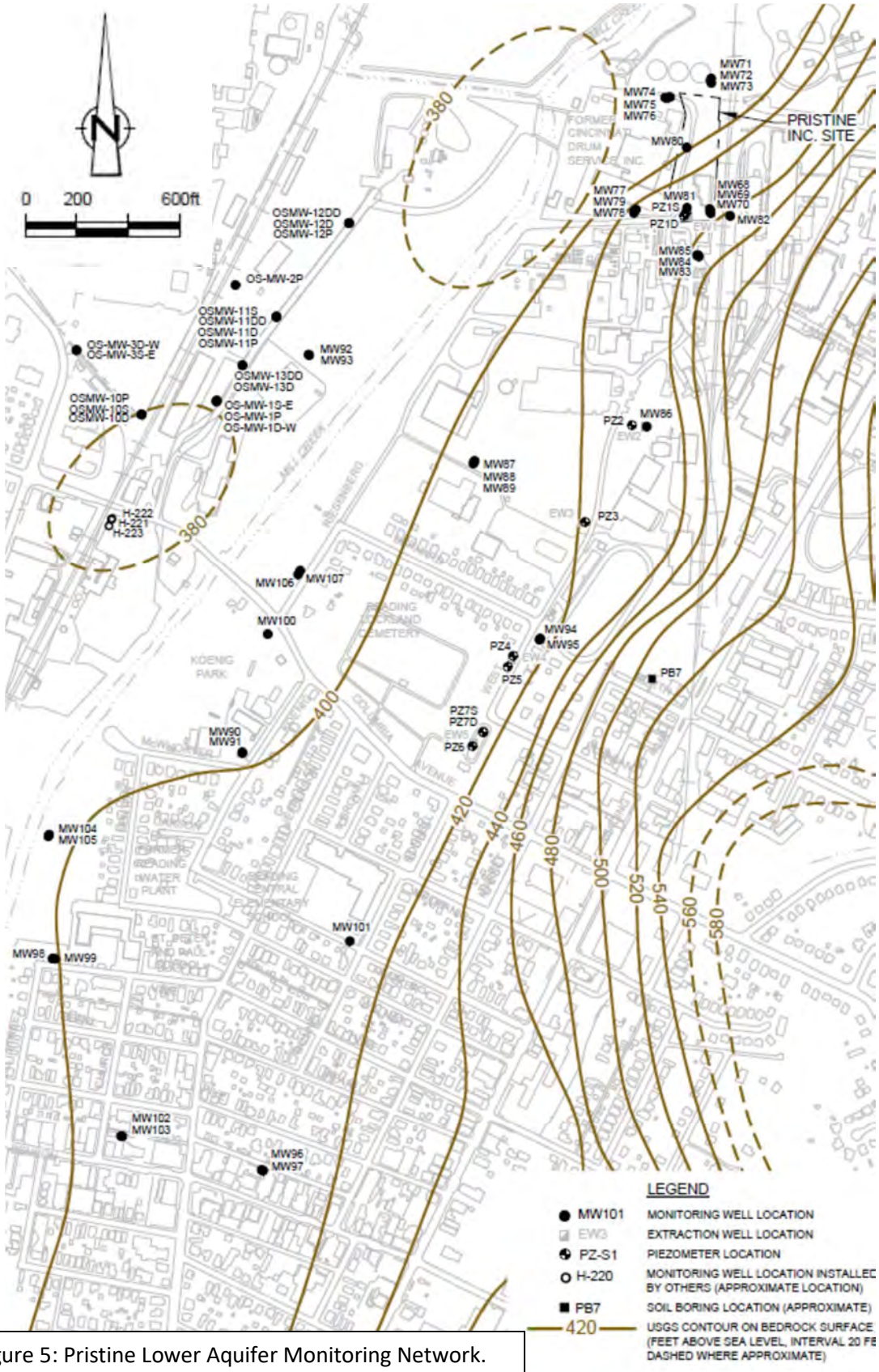


Figure 5: Pristine Lower Aquifer Monitoring Network.
Note: OS wells are associated with an adjacent facility.
From Preliminary Conceptual Site Model (GHD, 2019)

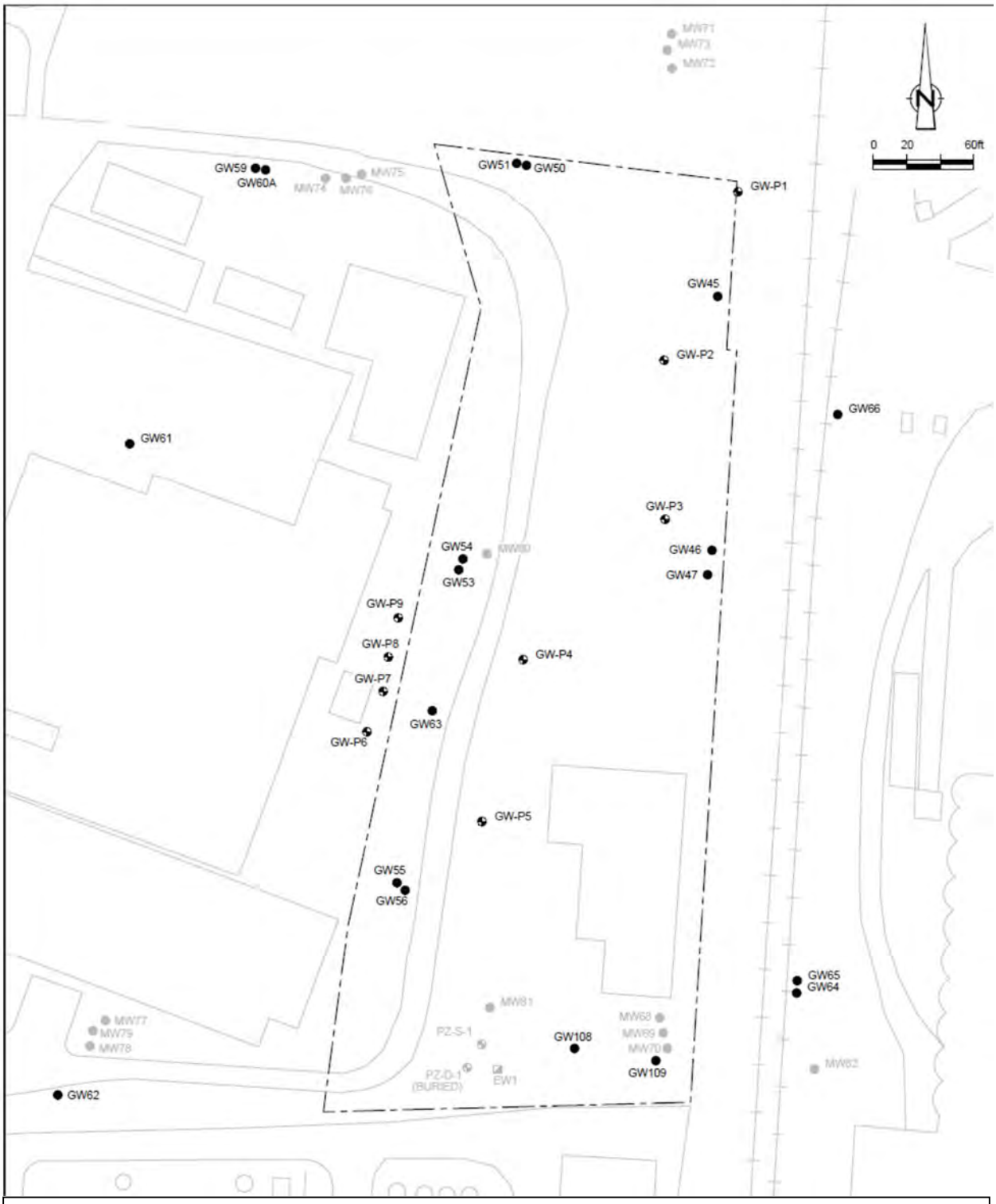


Figure 6: Pristine Upper Aquifer Monitoring Network

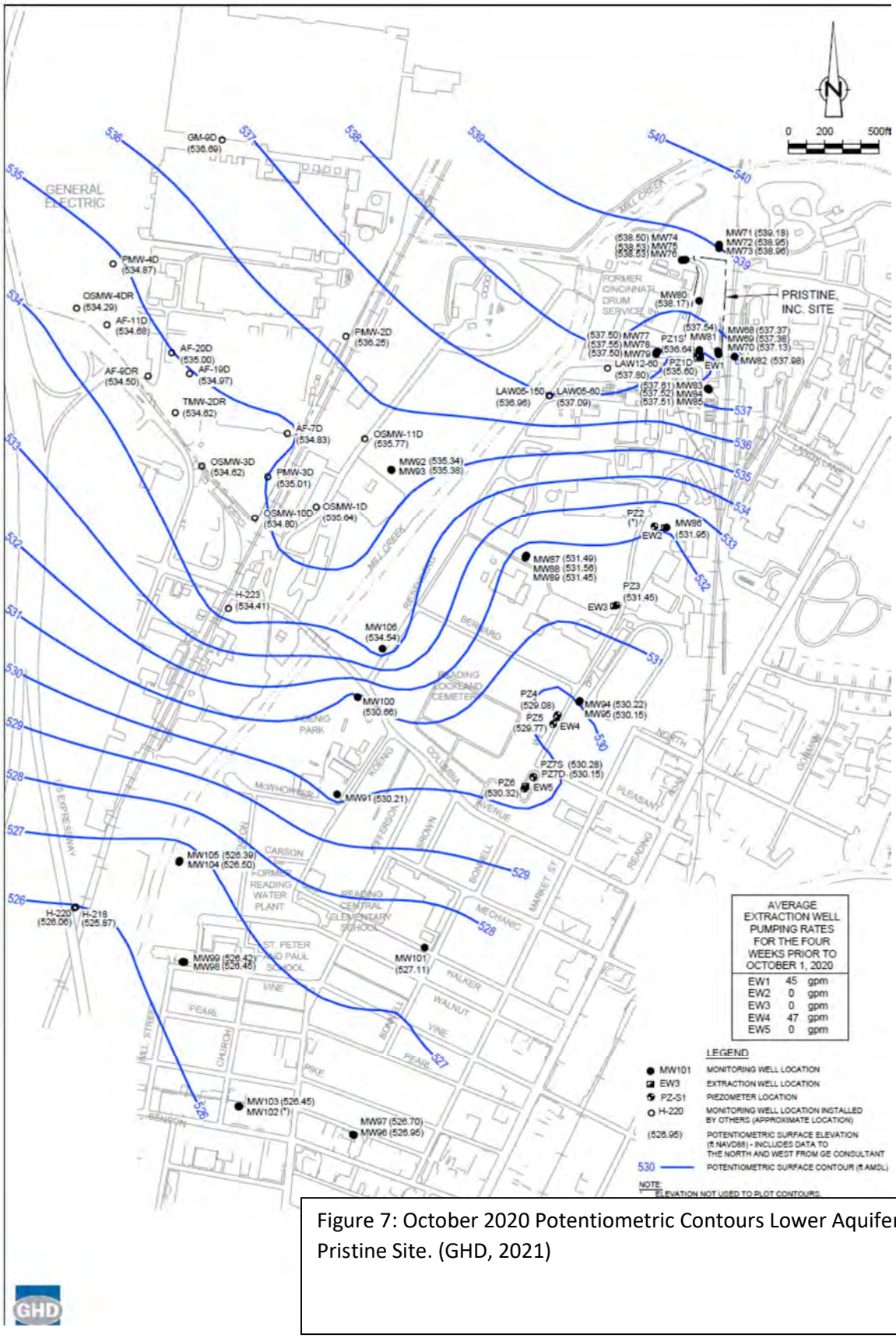


Figure 7: October 2020 Potentiometric Contours Lower Aquifer, Pristine Site. (GHD, 2021)

APPENDIX C

Pristine Institutional Controls

To be recorded with Deed Records - ORC § 317.08

MAY 12 2009

ENVIRONMENTAL COVENANT

This Environmental Covenant is made as of the 26TH day of MAY, 2009, by and among Owners/Holders CAPA Property Management, LLC; and Jeffrey D. Long (as further identified below); pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 5301.92 for the purpose of subjecting the Site and the Restricted Area (described below) to the Activity and Use Limitations and to the rights of access described below.

Whereas, pursuant to Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9605, the United States Environmental Protection Agency ("U.S. EPA" or "the Agency") placed the Pristine, Inc. Site ("Site") on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the *Federal Register*, 48 *Fed. Reg.* 40658 (September 8, 1983); and

Whereas, in a Remedial Action/Feasibility Study (RI/FS) completed on July 23, 1987, U.S. EPA found the following contaminants had been released into the soil at the Site: polychlorinated biphenyls, DDT, aldrin, dieldrin, 1,2-dichlorethane, methylene chloride, chloroform, benzene, vinyl chloride, tetrachloroethene, trichloroethene, polycyclic aromatic hydrocarbons, phenol, bis(2-ethylhexyl)phthalate, cadmium, lead, mercury, 2,3,7,8-tetrachlorodibenzodioxin; and

Whereas, U.S. EPA issued a final Record of Decision (ROD) on December 31, 1987, which called for excavation and on-site consolidation of 1,725 cubic yards of sediment and soil; in-situ vitrification of contaminated soil to an average depth of ten feet across the Site; installation of a french drain along the eastern Site boundary; extraction of groundwater from the lower outwash lens/lower aquifer using at least one extraction well; on-site treatment of groundwater using an air stripper with discharge to Mill Creek; demolition, decontamination and removal of all on-site structures; access and deed restrictions, and groundwater monitoring; and

Whereas on March 30, 1990, U.S. EPA issued a ROD Amendment to change treatment of on-site soils from in-situ vitrification to thermal incineration and in-situ vapor extraction, and whereas U.S. EPA entered a Remedial Design/Remedial Action Consent Decree on October 23, 1990 (United States District Court for the Southern District of Ohio, Western Division, Civil Action No., C-1-89-837), which provided for the implementation of the remedial alternative selected in the December 1987 ROD, as amended by the March 1990 ROD Amendment, and whereas with the exception of achieving groundwater and soil cleanup goals and implementing all institutional controls, the remedial action has been implemented at the Site; and

Whereas, the parties hereto have agreed: 1) to grant a permanent right of access over the Site to the Access Grantees (as hereafter defined) for purposes of implementing

facilitating and monitoring the remedial action, and 2) to impose on the Site Activity and Use Limitations as covenants that will run with the land for the purpose of protecting human health and the environment; and

MAY 12 2009

Now therefore, Owners and U.S. EPA agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant executed and delivered pursuant to §§ 5301.80 to 5301.92 of the ORC. U.S. EPA is the Agency, as defined by ORC 5301.80(B), that approved the environmental response project pursuant to which this environmental covenant is created. Pursuant to ORC 5301.81(B), any right of U.S. EPA under this environmental covenant is not an interest in real property.

2. Site; Restricted Area. The one (1) parcel of real property which contains 13.327 acres located in the City of Reading, Hamilton County, Ohio (the "Site") which is subject to the environmental covenants set forth herein is described on **Exhibit A** attached hereto and hereby by reference incorporated herein. The property address is 400 Cavett Avenue; Reading, Ohio. The Rohm and Haas Site is immediately south of the property. Immediately north of the property, the Metropolitan Sewer District of Greater Cincinnati operates a sewage holding and treatment facility. Railroad tracks owned by the Southwest Ohio Regional Transit Authority are east of the property. Mill Creek and General Electric Company property are generally west of the property. Part of the Site which is subject to additional Activity and Use Limitations in Paragraph 5 below is described on **Exhibit B** attached hereto and hereby incorporated herein, and is hereafter referred to as the **"Restricted Area."** The Restricted Area is the property upon which Pristine, Inc. conducted operations in Reading, Ohio, the adjacent ditches and the structure referred to as the Magic Pit, which is located on Cincinnati Drum Service property, as depicted in the map attached as Appendix 10 to the Consent Decree. The Site is outlined by the heavy black line on the copy of the Hamilton County, Ohio, Auditor's tax map (the "Map") attached hereto as **Exhibit C-1**, and the Restricted Area is shown on the copy of the Map attached hereto as **Exhibit C-2.**

3. Owner. CAPA Property Management, LLC, whose registered agent's address is R. Warner Office, 255 East Fifth Street, Suite 1900, Cincinnati, Ohio 45202; and Jeffrey D. Long, whose address is Cincinnati Drum Services, Inc., One Louise Ave., P.O. Box 16141, Ludlow, Kentucky 41016-0141 (collectively "Owners") are the owners of the Site. Owners are the Settling Owner/Operator Defendants, or their successors, named in the Consent Decree described in the first page of this Environmental Covenant.

4. Holders. CAPA Property Management, LLC; and Jeffrey D. Long, whose addresses appear in Paragraph 3 above.

5. Activity and Use Limitations on the Restricted Area and on the Site.

(a) Owners agree for themselves and their successors in title not to permit the Site, including the Restricted Area, to be used in any manner that would interfere with or adversely affect the integrity or protectiveness of the remedial action which has been implemented or which will be implemented pursuant to the Consent Decree unless the written consent of the U.S. EPA to such use is first

obtained. Owners' agreement to restrict the use of the Restricted Area shall include, but not be limited to, not permitting any drilling, digging, building, or the installation, construction, removal or use of any buildings, wells, pipes, roads, ditches, or any other structures in the Restricted Area unless the written consent of U.S. EPA to such use or activity is first obtained.

(b) Owners covenant for themselves and their successors and assigns, that the Restricted Area shall be used solely for industrial activities only in accordance with a U.S. EPA-approved plan for re-use of the Restricted Area, and that the Restricted Area shall not be used for commercial or residential purposes, including, but not limited to, the construction, installation, or use of any structures or buildings for residential or commercial purposes. This prohibition includes the use of the property for the storage of drums. Residential uses that are prohibited include single and multi-family dwelling units (including those occupied by the owner(s) of the unit(s) and by the renter(s)); day-care centers; hotels, motels, and rooming houses; correctional facilities and detention centers; transient or other residential facilities; elementary and secondary schools; and hospitals. Owners acknowledge and agree that the Restricted Area has been remediated only for industrial uses.

(c) Owners covenant for themselves and their successors and assigns that there shall be no consumptive use of the Site groundwater, including the Restricted Area, either on or off the Site, until cleanup goals are achieved.

(d) Owners covenant for themselves and their successors and assigns that there shall not be any interference with Site remedial components, including groundwater pump and treatment systems and in-situ vapor extraction systems.

6. Running with the Land. This Environmental Covenant shall be binding upon the Owners and all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Site or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

7. Requirements for Notice to U.S. EPA Following Transfer of a Specified Interest in, or Concerning Proposed Changes in the Use of, Applications for Building Permits for, or Proposals for any Site Work Affecting Contamination on the Restricted Area. Neither Owners nor any Holder shall transfer any interest in the Restricted Area or make proposed changes in the use of the Restricted Area, or make applications for building permits for, or proposals for any work in the Restricted Area without first providing notice to U.S. EPA and obtaining any approvals thereto that are required under the Consent Decree.

8. Access to the Site. Pursuant to Section X of the Consent Decree, Owners agree that U.S. EPA and Settling Defendants, their successors and assigns, and their respective officers, employees, agents, contractors and other invitees (collectively, "Access Grantees") shall have and hereby grants to each of them an unrestricted right of access to the Site

to undertake the Permitted Uses described in Paragraph 9 below and, in connection therewith, to use all roads, drives and paths, paved or unpaved, located on the Site or off the Site ("off-site") and rightfully used by Owners and Owners' invitees for ingress to or egress from portions of the Site (collectively, "Access Roads"). The right of access granted under this Paragraph 8 shall be irrevocable while this Covenant remains in full force and effect. The Settling Defendants are named on **Exhibit D** attached hereto.

9. Permitted Uses. The right of access granted under Paragraph 8 of this Environmental Covenant shall provide Access Grantees with access to the Site, or such other property, for the purpose of conducting any activity related to the Consent Decree or the purchase of the Site, including, but not limited to, the following activities:

a) Monitoring the Work;

b) Verifying any data or information submitted to the United States or the State;

c) Conducting investigations relating to contamination at or near the Site;

d) Obtaining samples;

e) Assessing the need for, planning, or implementing response actions at or near the Site;

f) Implementing the Work pursuant to the Consent Decree;

g) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Owners or their agents, consistent with Section XV (Retention and Availability of Information) of the Consent Decree;

h) Assessing Settling Defendants' compliance with the Consent Decree;

i) Determining whether the Site or other property is being used in a manner that is prohibited or restricted or that may need to be prohibited or restricted by or pursuant to the Consent Decree;

j) Surveying and making soil tests of the Site, locating utility lines, and assessing the obligations which may be required of a prospective purchaser by U.S. EPA under the Consent Decree; and

k) Enforcing and maintaining compliance with this Environmental Covenant.

10. Administrative Record. Copies of the U.S. EPA administrative record for the Pristine, Inc. Site are maintained at the following locations: U.S. EPA Region 5; Superfund Records Center (7th Floor); 77 W. Jackson; Chicago, Illinois 60604; and the Public Library of Cincinnati and Hamilton County, Reading Branch; 9001 Reading Road; Cincinnati, Ohio 45215.

11. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Site or Restricted Area or any portion of the Site or Restricted Area shall contain a notice of the Activity and Use Limitations, and grants of access set forth in the Environmental Covenant, and provide the recorded location of this Environmental Covenant. For instruments conveying any interest in the Site or any portion thereof other than the Restricted Area, the notice shall be substantially in the form set forth in **Exhibit E**. For instruments conveying any interest in the Restricted Area or any portion thereof, the notice shall be substantially in the form set forth in **Exhibit F**.

12. Amendments; Early Termination. This Environmental Covenant may be modified, amended or terminated while Owners own the property only by a writing signed by Owners and U.S. EPA with the formalities required for the execution of a deed in Ohio which is recorded in the Office of the Recorder of Hamilton County, Ohio. Upon transfer of all or any portion of the Site, Owners waive any rights that they might otherwise have under Section 5301.90 of the ORC to withhold their consent to any amendments, modifications, or termination of this Environmental Covenant, to the extent that they have transferred their interest in that portion of the Site affected by said modification, amendment or termination. The rights of Owners' successors in interest as to a modification, amendment or termination of this Environmental Covenant are governed by the provisions of Section 5301.90 of the ORC.

13. Other Matters.

(a) Representations and Warranties of Owner. Owners represent and warrant; that Owners are the only owners of the Site; that Owners hold fee simple title to the Site which is free, clear and unencumbered except for the Consent Decree; that Owners have the power and authority to make and enter into this Agreement as Owners and Holders, to grant the rights and privileges herein provided and to carry out all obligations of Owners and Holders hereunder; that this Agreement has been executed and delivered pursuant to the Consent Decree; and, that this Agreement will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owners are a party or by which Owners may be bound or affected.

(b) Right to Enforce Agreement against Owners; Equitable Remedies. In the event that Owners or any other person should attempt to deny the rights of access granted under Paragraph 8 or should violate the restrictions on use of the Site set forth in Paragraph 5; then, in addition to any rights which U.S. EPA may have under the Consent Decree, U.S. EPA or any Settling Defendant that is adversely affected by each denial (for example, any Settling Defendant that is prevented from conducting its remedial obligations under the Consent Decree) or by such violation shall have the right to immediately seek an appropriate equitable remedy and any court having jurisdiction is hereby granted the right to issue a temporary restraining order and/or preliminary injunction prohibiting such denial of access or use in violation of restrictions upon application by U.S. EPA or

by such adversely affected Settling Defendant without notice or posting bond. Owners and each subsequent owner of the Site by accepting a deed thereto or to any part thereof waive all due process or other constitutional right to notice and hearing before the grant of a temporary restraining order and/or preliminary injunction pursuant to this Subsection 13(b).

(c) Future Cooperation; Execution of Supplemental Instruments. Owners agree to cooperate fully with U.S. EPA and/or the Settling Defendants and to assist them in implementing the rights granted them under this Environmental Covenant and, in furtherance thereof, agree to execute and deliver such further documents as may be requested by U.S. EPA to supplement or confirm the rights granted hereunder.

(d) Cumulative Remedies; No Waiver. All of the rights and remedies set forth in this Environmental Covenant or otherwise available at law or in equity are cumulative and may be exercised without regard to the adequacy of, or exclusion of, any other right, remedy or option available hereunder or under the Consent Decree or at law. The failure to exercise any right granted hereunder, to take action to remedy any violation by Owners of the terms hereof or to exercise any remedy provided herein shall not be deemed to be a waiver of any such right or remedy, and no forbearance on the part of U.S. EPA and no extension of the time for performance of any obligations of Owners hereunder shall operate to release or in any manner affect U.S. EPA's rights hereunder.

(e) Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

(f) Recordation. Within thirty (30) days after the date of the final required signature upon this Environmental Covenant, Owners shall file this Environmental Covenant for recording, in the same manner as a deed to the Site, with the Hamilton County Recorder's Office.

(g) Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Site with the Hamilton County Recorder.

(h) Distribution of Environmental Covenant/Other Notices. The Owners shall distribute a file-stamped and date-stamped copy of the recorded Environmental Covenant to: Ohio EPA, Hamilton County, each person holding a recorded interest in the Site, and the Settling Defendants. All notices, requests, demands or other communications required or permitted under this Environmental Covenant shall be given in the manner and with the effect set forth in the Consent Decree.

(i) Notices – All notices, requests, demands or other communications required or permitted under this Environmental Covenant shall be directed to the following individuals:

As to the United States or U.S. EPA:

1) Pristine, Inc. Site Attorney
U.S. Environmental Protection Agency
Office of Regional Counsel
77 W. Jackson Blvd., C-14J
Chicago, IL 60604

2) Pristine, Inc. Remedial Project Manager
U.S. Environmental Protection Agency
77 W. Jackson Blvd., SR-6J
Chicago, IL 60604

3) Assistant Attorney General
U.S. Department of Justice
Land & Natural Resources Division
10th & Pennsylvania Avenue, NW
Washington, D.C. 20530

As to the State of Ohio:

Pristine, Inc. Site Coordinator
Ohio Environmental Protection Agency
SWDO, DERR
401 E. Fifth St.
Dayton, OH 45402-2911

(j) Governing Law. This Environmental Covenant shall be construed according to and governed by the laws of the State of Ohio and the United States of America. Except as provided herein, the laws of the State of Ohio shall be the governing law. Federal law shall govern issues related to environmental remediation; the adequacy of the institutional controls to protect human health and the environment; and issues involving or relating to U.S. EPA. The federal court for the appropriate judicial district shall have jurisdiction of any action involving the U.S. EPA.

(k) Captions. All paragraph captions are for convenience of reference only and shall not affect the construction of any provision of this Environmental Covenant.

(l) Time of the Essence. Time is of the essence of each and every performance obligation of Owners under this Environmental Covenant.

IN WITNESS WHEREOF, Owner and U.S. EPA have executed and delivered this Environmental Covenant as of the date first above written.

OWNER

CAPA Property Management, LLC

KENTUCKY
STATE OF ~~OHIO~~)
) SS.
COUNTY OF Henton)

The foregoing instrument was acknowledged before me this 26th day of May, 2009, by CAPA Property Management, LLC.

Notary Public

Exp: 12/13/12

IN WITNESS WHEREOF, Owner and U.S. EPA have executed and delivered this Environmental Covenant as of the date first above written.

OWNER
CINCINNATI DRUM SERVICE, INC
SCHEDULE C DEFENDANTS
Pres./Treas.
Jeffrey D. Long

KENTUCKY
STATE OF OHIO XXXX)
) SS.
COUNTY OF Kenton)

The foregoing instrument was acknowledged before me this 26th day of May, 2009, by Jeffrey D. Long.

Ruth Johnson
Notary Public
Exp: 12/13/12

IN WITNESS WHEREOF, Owners and U.S. EPA have executed and delivered this Environmental Covenant as of the date first above written.

UNITED STATES OF AMERICA
On behalf of the Administrator of the
United States Environmental Protection Agency

By: Richard C Karl
Richard C. Karl, Director
Superfund Division, Region 5

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

The foregoing instrument was acknowledged before me this 9TH day of JULY, 2009, by Richard C. Karl, Director, Superfund Division, Region 5 of the United States Environmental Protection Agency, on behalf of the United States of America.

OFFICIAL SEAL
JOHN V FAGIOLO
NOTARY PUBLIC - STATE OF ILLINOIS
COMMISSION EXPIRES 8/13/10

John V Fagiolo
Notary Public

EXHIBIT A

Legal Description of the "Site"

Starting at a steel post in the Northeast corner of said Section 33; thence Southwardly in the east line of said section a distance of 1249.38 feet to a point; thence North 86 degrees 20 minutes 47 seconds West, a distance of 784.50 feet to a concrete monument in the West Right-of-way Line of the Phil. Bait, and Washington Railroad; and the Place of Beginning of the Tract of land herein described; thence South 0 degrees 09 minutes 23 seconds West; a distance of 450.00 feet to a point; thence South 85 degrees 08 minutes 15 seconds West, a distance of 200.00 feet to an iron pin; thence South 85 degrees 08 minutes 15 seconds West, a distance of 991.03 feet to a concrete monument; thence North- 3 degrees 47 minutes 23 seconds East, a distance of 61.33 feet to a concrete monument; thence North 73 degrees 17 minutes 45 seconds East, a distance of 204.00 feet to an iron pin; thence North 63 degrees 13 minutes 45 seconds East, a distance of 70.00 feet to an iron pin; thence North 43 degrees 44 minutes 38 seconds East, a distance 144.22 feet to an iron pin; thence North 8 degrees 51 minutes 45 seconds East, a distance of 158.11 feet to an iron pin; thence North 64 degrees 16 minutes 15 seconds West, a distance of 226.00 feet to a concrete monument; thence North 65 degrees 11 minutes 15 seconds West, a distance of 100.00 feet to an iron pin; thence North 70 degrees 43 minutes 39 seconds West, a distance of 100.06 feet to an iron pin; thence North 80 degrees 21 minutes 15 seconds West, a distance of 100.00 feet to an iron pin; thence North 86 degrees 47 minutes 48 seconds West, a distance of 55.10 feet to a concrete monument; thence North 3 degrees 45 minutes 45 seconds East, a distance of 34.76 feet to a point; thence South 86 degrees 14 minutes 15 seconds East, a distance of 551.74 feet to an iron pin in the center of the East Branch of Mill Creek; thence with the centerline of said creek North 47 degrees 53 minutes 45 seconds East, a distance of 137.56 feet to an iron pin; thence leaving the centerline of said creek south 86 degrees 20 minutes 47 seconds East, a distance of 685.17 feet to an iron pin in the West Right-of-Way Line of the aforesaid railroad; thence with the West line of said railroad South 0 degrees 09 minutes 23 seconds West, a distance of 100.32 feet to a concrete monument; thence South 85 degrees 17 minutes 20 seconds East 6.00 feet to the point of beginning, containing 13.327 Acres of land, more or less.

EXHIBIT B

Legal Description of the "Restricted Area"

Situated in the Section 33, Town 4, Entire Range 1, Sycamore Township, City of Reading, Hamilton County, Ohio and being more particularly described as follows:

BEGINNING at the southeast corner of a tract of land conveyed to CAPA Property Management, LLC (undivided one half interest) recorded in O.R. 9781, Pg. 2994 of the Hamilton County Recorder's Office and Jeffrey D. Long, Tr. as recorded in D.B. 6048, Pg. 1022 of the Hamilton County Recorder's Office.

Thence along the lines and through the lands of said CAPA Property Management, LLC and Jeffrey D. Long, Tr. the following sixteen courses:

1. South 85°08'15" West, 222.68 feet;
2. North 05°20'38" East, 26.01 feet;
3. North 07°19'05" East, 114.31 feet;
4. North 47°10'15" West, 28.41 feet;
5. North 05°50'14" West, 57.74 feet;
6. North 13°24'40" East, 102.68 feet;
7. South 75°46'46" East, 24.20 feet;
8. North 09°52'05" East, 177.82 feet;
9. North 16°41'26" West, 57.43 feet;
10. North 64°21'49" West, 15.28 feet;
11. North 00°05'49" West, 20.12 feet;
12. North 02°58'11" West, 14.31 feet;
13. South 86°20'47" East, 180.80 feet;
14. South 00°09'23" West, 100.32 feet;
15. South 85°17'20" East, 6.00 feet;
16. South 00°09'23" West, 450.00 feet to the **POINT OF BEGINNING.**

CONTAINING 2.5374 ACRES. Subject to legal highways and easements of record.

Being part of the property conveyed to CAPA Property Management, LLC (undivided one half interest) recorded in O.R. 9781, Pg. 2994 of the Hamilton County Recorder's Office and Jeffrey D. Long, Tr. as recorded in D.B. 6048, Pg. 1022 of the Hamilton County Recorder's Office.

The bearings are based on Official Record 9781, Page 2994 of the Hamilton County Recorder's Office.

EXHIBIT C-2

Drawing of Restricted Area

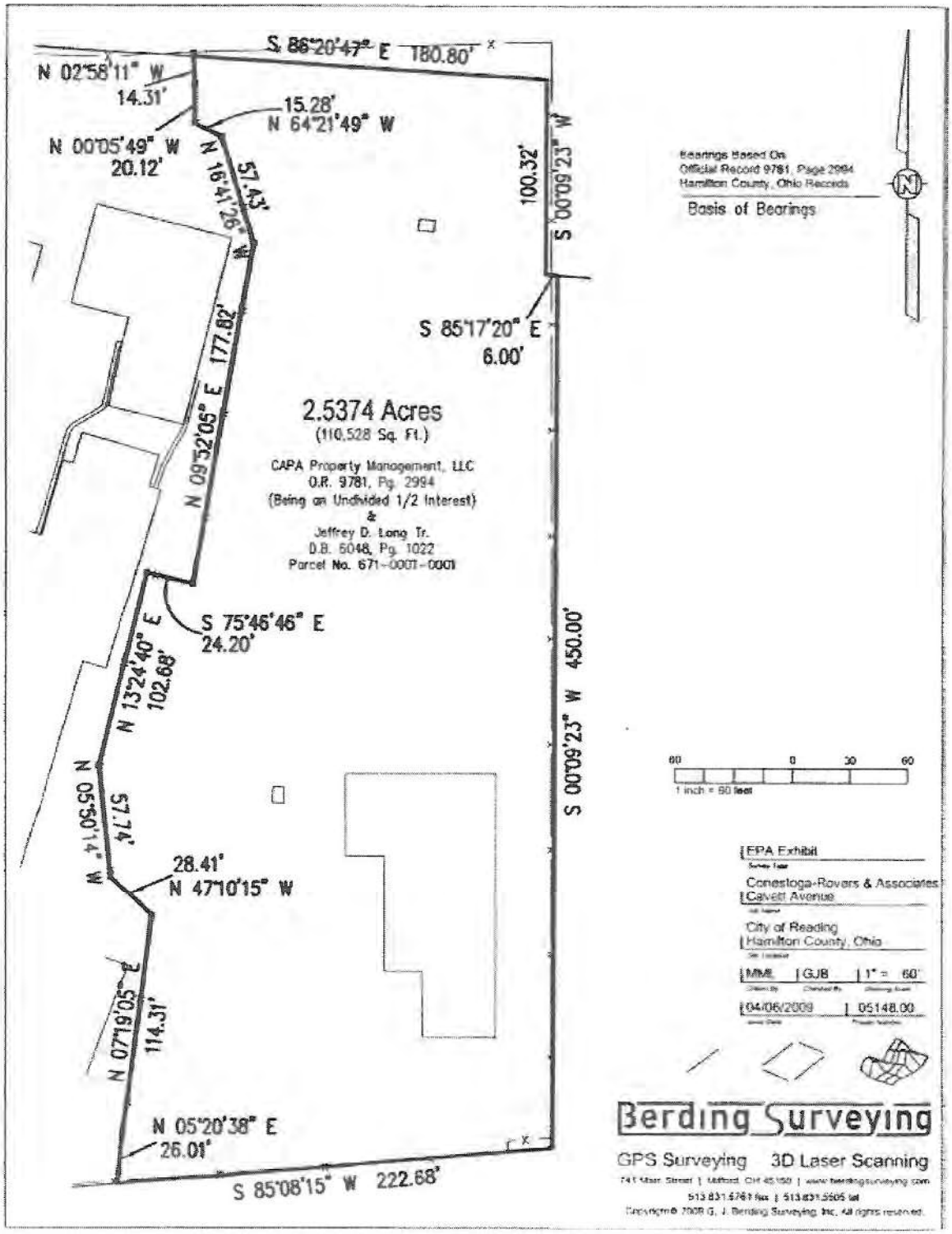


EXHIBIT D

List of Settling Defendants

ELI LILLY AND COMPANY
FORMICA CORPORATION
PROCTER & GAMBLE
BORDEN, INC.
GENERAL MOTORS CORPORATION
AMSCO SOLVENTS AND CHEMICAL COMPANY
NATICO, INC.
IBM CORPORATION
CROWN ZELLERBACH CORPORATION
SENCO PRODUCTS
BROWNING FERRIS INDUSTRIES/CECOS (NEWCO)
MONSANTO RESEARCH CORPORATION
LYNN SOLVENTS / VAN WALTERS & ROGERS
GENERAL ELECTRIC CO. (EVENDALE)
AMERICAN GREETINGS CORP.
EMERY INDUSTRIES, INC.
PROTECTIVE TREATMENTS, INC.
SUPERIOR SOLVENTS & CHEMICALS
FRYE COPY SYSTEMS, INC.
KENNER PRODUCTS
KOENIGKRAMER, F. AND F., DIVISION
BRULIN & COMPANY
LIEBEL-FLARSHEIM
VELSICOL CHEMICAL CORPORATION
CHEMICAL LEAMAN TANK LINES, INC.
U.S. INDUSTRIAL CHEMICALS
S. ROSENTHAL & CO., INC.
OREN LONG
JANE LONG
PAULINE LONG
LONG REAL ESTATE
JEFFREY LONG
BARRY LONG
GEOFFREY LONG
JON LONG
GREGORY LONG
DENNIS LONG
CINCINNATI DRUM SERVICE, INC.

EXHIBIT E

Notice upon Conveyance of Site or any Portion thereof other than the Restricted Area

THE INTEREST CONVEYED HEREBY IS SUBJECT TO A CONSENT DECREE DATED OCTOBER 23, 1990, WHICH WAS RECORDED IN THE OFFICE OF THE HAMILTON COUNTY RECORDER, **OR BOOK _____, Pages _____**, AND WHICH RESTRICTS THE INTEREST CONVEYED AS SET FORTH IN THIS NOTICE AND AN ENVIRONMENTAL COVENANT, DATED _____, 2009, RECORDED IN THE DEED OR OFFICIAL RECORDS OF THE HAMILTON COUNTY RECORDER ON _____, 2009, in BOOK _____, Page _____. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS AND ACCESS RIGHTS:

Activity and Use Limitations on the Site.

(a) The Site shall not be used in any manner that would interfere with or adversely affect the integrity or protectiveness of the remedial action which has been implemented or which will be implemented pursuant to the Consent Decree unless the written consent of U.S. EPA to such use is first obtained.

(b) There shall not be any interference with Site remedial components, including groundwater pump and treatment systems and in-situ vapor extraction systems.

Access to the Site. Pursuant to Section X of the Consent Decree and the Environmental Covenant, U.S. EPA and the Settling Defendants, their successors and assigns, and their respective officers, employees, agents, contractors and other invitees (collectively, "Access Grantees") shall have an unrestricted right of access to the Site to undertake the Permitted Uses described below and, in connection therewith, to use all roads, drives and paths, paved or unpaved, located on the Site or off the Site ("off-site"). The right of access set forth above shall be irrevocable while the Environmental Covenant remains in full force and effect. The Settling Defendants are named on **Exhibit D** of the Environmental Covenant.

Permitted Uses. The right of access granted under the Environmental Covenant shall provide Access Grantees with access to the Site, or such other property, for the purpose of conducting any activity related to the Consent Decree or the purchase of the Site, including, but not limited to, the following activities:

a) Monitoring the Work;

b) Verifying any data or information submitted to the United States or the State;

c) Conducting investigations relating to contamination at or near the Site;

Access to the Restricted Area. Pursuant to Section X of the Consent Decree and the Environmental Covenant, U.S. EPA and the Settling Defendants, their successors and assigns, and their respective officers, employees, agents, contractors and other invitees (collectively, "Access Grantees") shall have an unrestricted right of access to the Restricted Area to undertake the Permitted Uses described below. The right of access granted under this Paragraph shall be irrevocable while this Environmental Covenant remains in full force and effect. The Settling Defendants are named on **Exhibit D** of the Environmental Covenant.

Permitted Uses. The right of access granted under the Environmental Covenant shall provide Access Grantees with access to the Restricted Area, or such other property, for the purpose of conducting any activity related to the Consent Decree or the purchase of the Restricted Area, including, but not limited to, the following activities:

a) Monitoring the Work;

b) Verifying any data or information submitted to the United States or the State;

c) Conducting investigations relating to contamination at or near the Restricted Area;

d) Obtaining samples;

e) Assessing the need for, planning, or implementing response actions at or near the Restricted Area;

f) Implementing the Work pursuant to the Consent Decree;

g) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Owner or her agents, consistent with Section XV (Retention and Availability of Information) of the Consent Decree;

h) Assessing Settling Defendants' compliance with the Consent Decree;

i) Determining whether the Restricted Area or other property is being used in a manner that is prohibited or restricted or that may need to be prohibited or restricted by or pursuant to the Consent Decree;

j) Surveying and making soil tests of the Restricted Area, locating utility lines, and assessing the obligations which may be required of a prospective purchaser under the Consent Decree; and

k) Enforcing and maintaining compliance with the Environmental Covenant.

15992

FILED

OCT 12 1990

KENNETH J. MURPHY, Clerk
CINCINNATI, OHIO

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION

UNITED STATES OF AMERICA,	:	
	:	Civil Action No. C-1-89-837
Plaintiff,	:	
	:	SUBMISSION OF AGREED
vs.	:	DEED RESTRICTIONS
	:	
AMERICAN GREETINGS CORP., ET AL.	:	
	:	
Defendants	:	

- - - - - - - - -

Pursuant to the representations made to the Court at the hearing of September 7, 1990, the United States respectfully submits the agreed Deed Restrictions which are to be appended to the proposed Consent Decree as Attachment 3.

Respectfully submitted,

D. MICHAEL CRITES
United States Attorney

Gerald F. Kaminski

GERALD F. KAMINSKI (0012532)
Assistant U.S. Attorney
220 U.S. Post Off. Bldg.
Cincinnati, Ohio 45202

513 684-3711

CERTIFICATE OF SERVICE

I hereby certify that on October 12, 1990, copies of the foregoing Submission of Agreed Deed Restrictions were served on all counsel of record.

Gerald F. Kaminski
GERALD F. KAMINSKI

DEED RESTRICTION

The record owners, Oren, Jane, and Pauline Long ("Owner Settling Defendants"), hereby impose restrictions on the following described real estate known as Pristine, Inc. and Cincinnati Drum Service (the "Site"):

Starting at a steel post in the Northeast corner of said Section 33; thence Southwardly in the east line of said section a distance of 1249.38 feet to a point; thence North 86 degrees 20 minutes 47 seconds West, a distance of 784.50 feet to a concrete monument in the West Right-of-way Line of the Phil. Balt. and Washington Railroad; and the Place of Beginning of the Tract of land herein described; thence South 0 degrees 09 minutes 23 seconds West; a distance of 450.00 feet to a point; thence South 85 degrees 08 minutes 15 seconds West, a distance of 200.00 feet to an iron pin; thence South 85 degrees 08 minutes 15 seconds West, a distance of 991.03 feet to a concrete monument; thence North-3 degrees 47 minutes 23 seconds East, a distance of 61.33 feet to a concrete monument; thence North 73 degrees 17 minutes 45 seconds East, a distance of 204.00 feet to an iron pin; thence North 63 degrees 13 minutes 45 seconds East, a distance of 70.00 feet to an iron pin; thence North 43 degrees 44 minutes 38 seconds East, a distance 144.22 feet to an iron pin; thence North 8 degrees 51 minutes 45 seconds East, a distance of 158.11 feet to an iron pin; thence North 64 degrees 16 minutes 15 seconds West, a distance of 226.00 feet to a concrete monument; thence North 65 degrees 11 minutes 15 seconds West, a distance of 100.00 feet to an iron pin; thence North 70 degrees 43 minutes 39 seconds West, a distance of 100.06 feet to an iron pin; thence North 80 degrees 21 minutes 15 seconds West, a distance of 100.00 feet to an iron pin; thence North 86 degrees 47 minutes 48 seconds West, a distance of 55.10 feet to a concrete monument; thence North 3 degrees 45 minutes 45 seconds East, a distance of 34.76 feet to a point; thence South 86 degrees 14 minutes 15 seconds East, a distance of 551.74 feet to an iron pin in the center of the East Branch of Mill Creek; thence with the centerline of said creek North 47 degrees 53 minutes 45 seconds East, a distance of 137.56 feet to an iron pin; thence leaving the centerline of said creek south 86 degrees 20 minutes 47 seconds East, a distance of 685.17 feet to an iron pin in the West Right-of-Way Line of the aforesaid railroad; thence with the West line of said railroad South 0 degrees 09 minutes 23 seconds West, a distance of 100.32 feet to a concrete monument; thence South 85 degrees 17 minutes 20 seconds East 6.00 feet to the point of beginning. containing 13.327 Acres of land, more or less.

The following restrictions, paragraphs No. 1 and 2 inclusively, are imposed upon the entire Site. However, paragraphs No. 3, 4 and 5 shall only be imposed on the property upon which Pristine, Inc. conducted operations in Reading, Ohio, the adjacent ditches and the structure referred to as the Magic Pit located on Cincinnati Drum Service property, as depicted in the map attached as Appendix 10 to the Consent Decree (the "Pristine Area"). This description of the Pristine Area will be supplemented at a later date with a more formal metes and bounds legal description. The restrictions shall prevent interference with the performance of remedial action and with long term maintenance of the remedy, pursuant to the Consent Decree approved by the United States District Court for the Southern District of Ohio, Case No. C-1-89-837, on September 7, 1990, and subsequently entered in October, 1990 (the "Consent Decree") and are required by Section IV, paragraph E of the Consent Decree, and the Remedial Action Plan (the "RAP").

1. There shall be no obstruction, delay or interference with the performance of any work required pursuant to the Consent Decree nor with the operation or effectiveness of the remedial action constructed or installed pursuant to the Consent Decree and attachments thereto.

2. There shall be no extraction from the Site of water from the lower aquifer for consumptive or other use, except as required by the RAP.

3. There shall be no residential or commercial use of the Site, including but not limited to, the construction, installation or use of any structures or buildings for residential or commercial purposes. This prohibition includes use of the property for storage of drums.

4. There shall be no use of the Site that would allow the continued presence of humans at the Site, other than any presence necessary for implementation of remedial action under the Consent Decree.

5. There shall be no installation, construction, removal or use of any buildings, wells, pipes, roads, ditches or any other structures at the Site except as consistent with the Consent Decree and the Remedial Action Plan which is Appendix 2 to the Consent Decree.

All of the above restrictions shall run with the land and be binding upon the owners and their respective successors, assigns and transferees. The restrictions set forth in paragraphs No. 1 and 5 above shall continue in perpetuity. The remaining restrictions shall remain in full force and effect unless and until U.S. EPA issues a determination in writing or the Court rules to either modify or terminate the restrictions in response to a petition from the Owner Settling Defendants, as provided below. A copy of these restrictions shall be provided to all respective successors, assigns and transferees.

After all the Work, as defined in the Consent Decree, has been completed and upon achievement of performance and clean-up standards, consistent with the Consent Decree and the RAP, the Owner Settling Defendant may petition the Regional Administrator of the U.S. EPA, Region V, or his delegate, to modify or terminate the deed restrictions in paragraphs 2 through 4 above. Any petition for modification or termination shall state the specific provision sought to be modified or terminated and the proposed additional uses of the property. Any proposed modifications or terminations must not be inconsistent with the requirements set forth in the ROD, the RAP, the RD/RA Work Plan, or the Consent Decree.

The property owners shall provide the Settling Defendants a copy of any petition for modification or termination of deed restriction submitted to U.S. EPA. Any party may object to the proposed use of the Site on the grounds that such use may expose humans, animals or plants to soil contaminants remaining at the Site, cause wind dispersal or surface run-off to carry soil contaminants off the Site, or cause migration of contaminants beyond the Site boundaries, or into the groundwater, in excess of the Cleanup Standards set forth in Section VI and Appendix 2 of the Consent Decree. Any party so objecting shall notify the owners, the U.S. EPA, and the State of Ohio in writing, within thirty (30) days of receipt of the proposed modification or termination. The Regional Administrator may allow or deny Owner Settling Defendant's petition or portions of the petition. Any dispute as to the Regional Administrator's determination is subject to the jurisdiction of the United States District Court for the Southern District of Ohio. However, U.S. EPA reserves its right to argue before the Court for record review and the appropriate standard of review of the Administrator's determination.

If any provision of this Deed Restriction is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provisions hereof. All such other provisions shall continue unimpaired in full force and effect.

If any provision of this Deed Restriction is also the subject of any law or regulation established by any federal, state or local government, the stricter of the two standards shall prevail.

No provision of this Deed Restriction shall be construed so as to violate any applicable zoning laws, regulations or ordinances. If any such conflict does arise, the applicable zoning laws, regulations or ordinances shall prevail, unless they are inconsistent with CERCLA.

The undersigned persons executing these Deed Restrictions on behalf of the Owner Settling Defendants represent and certify that they are duly authorized and have been fully empowered to execute and deliver these Deed Restrictions.

IN WITNESS WHEREOF, the said Owner Settling Defendants of the Site have caused these Deed Restrictions to be executed on this 9th day of OCTOBER, 1990.

OWNER SETTLING DEFENDANTS

By: Oren Long
Oren Long

By: Jane Long
Jane Long

By: Pauline Long
Pauline Long

ATTEST:

_____ AS TO OREN LONG and JANE LONG

_____ AS TO OREN LONG and JANE LONG

ATTEST:

_____ AS TO PAULINE LONG

_____ AS TO PAULINE LONG

State of Kentucky)
) SS:
County of KENTON)

Before me, a Notary Public in and for said County and State, personally appeared Oren Long, Jane Long, and respectively, Owner Settling Defendants, and acknowledge the execution of the foregoing Deed Restrictions on the Pristine, Inc. Site for and on behalf of said Owner Settling Defendants.

Witness my hand and Notarial Seal the 9 day of OCTOBER, 1990.

Notary Public

My County of Residence:

My Commission Expires: 5/30/91

This document was prepared by:
Nancy-Ellen Zusman
Assistant Regional Counsel
Office of Regional Counsel
U.S. Environmental Protection Agency
230 South Dearborn
Chicago, Illinois 60604
(312) 886-7161

Phillip Schwarer
Dinsmore & Shohl
2100 Fountain Square Plaza
511 Walnut Street
Cincinnati, Ohio 45202
(513) 977-8241

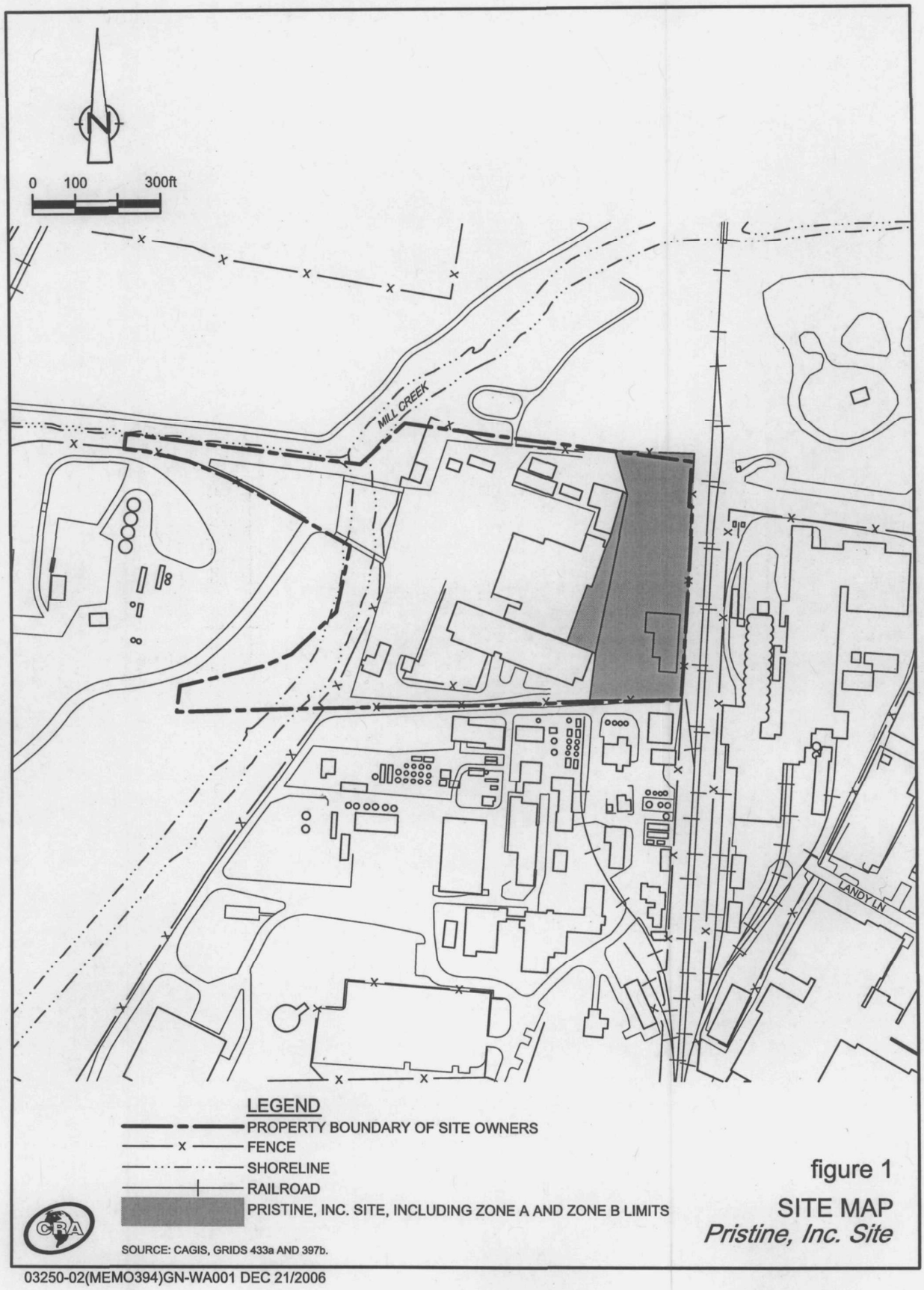


figure 1

SITE MAP

Pristine, Inc. Site

03250-02(MEMO394)GN-WA001 DEC 21/2006

EXHIBIT C-1

Drawing of Site

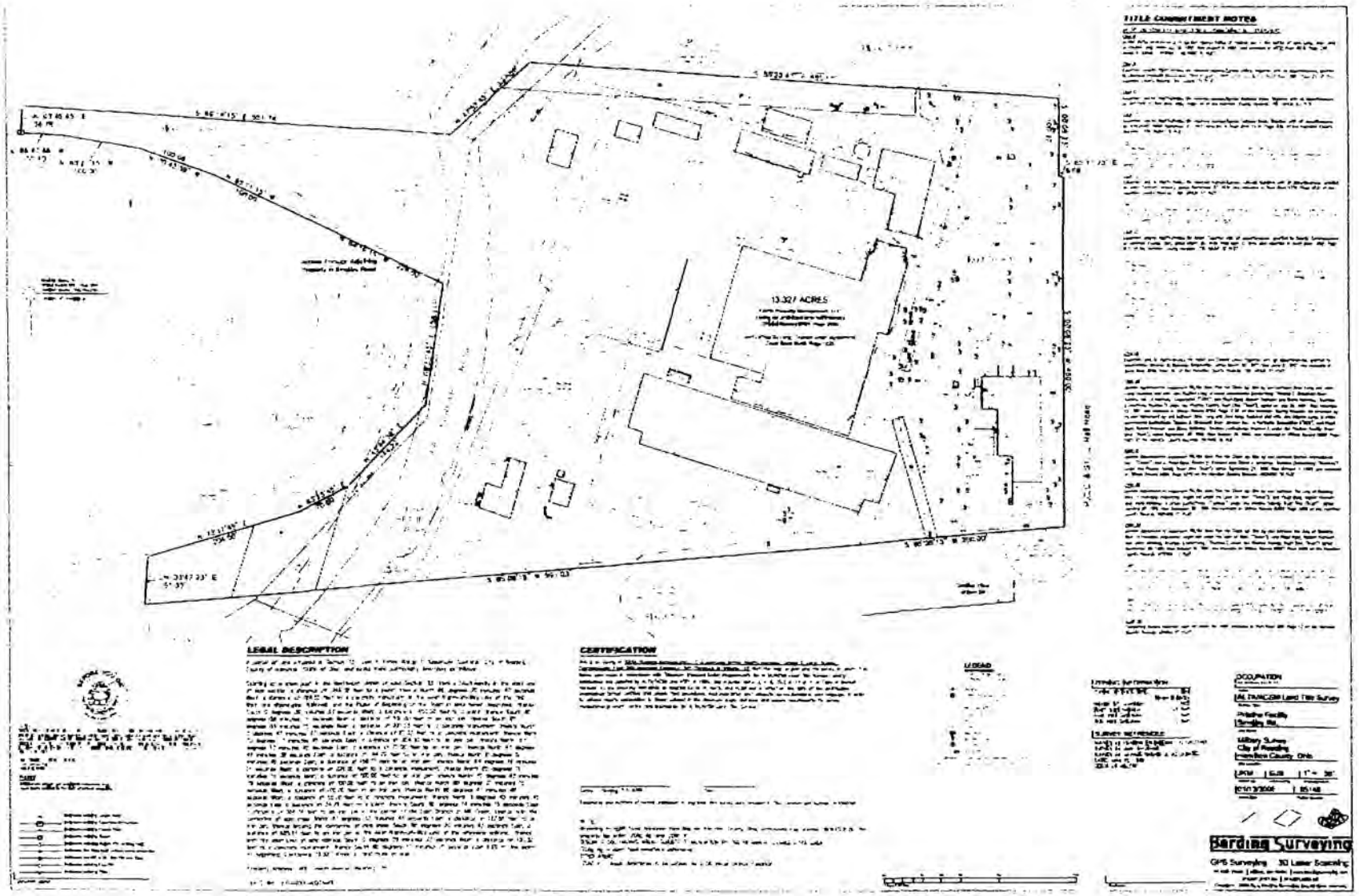
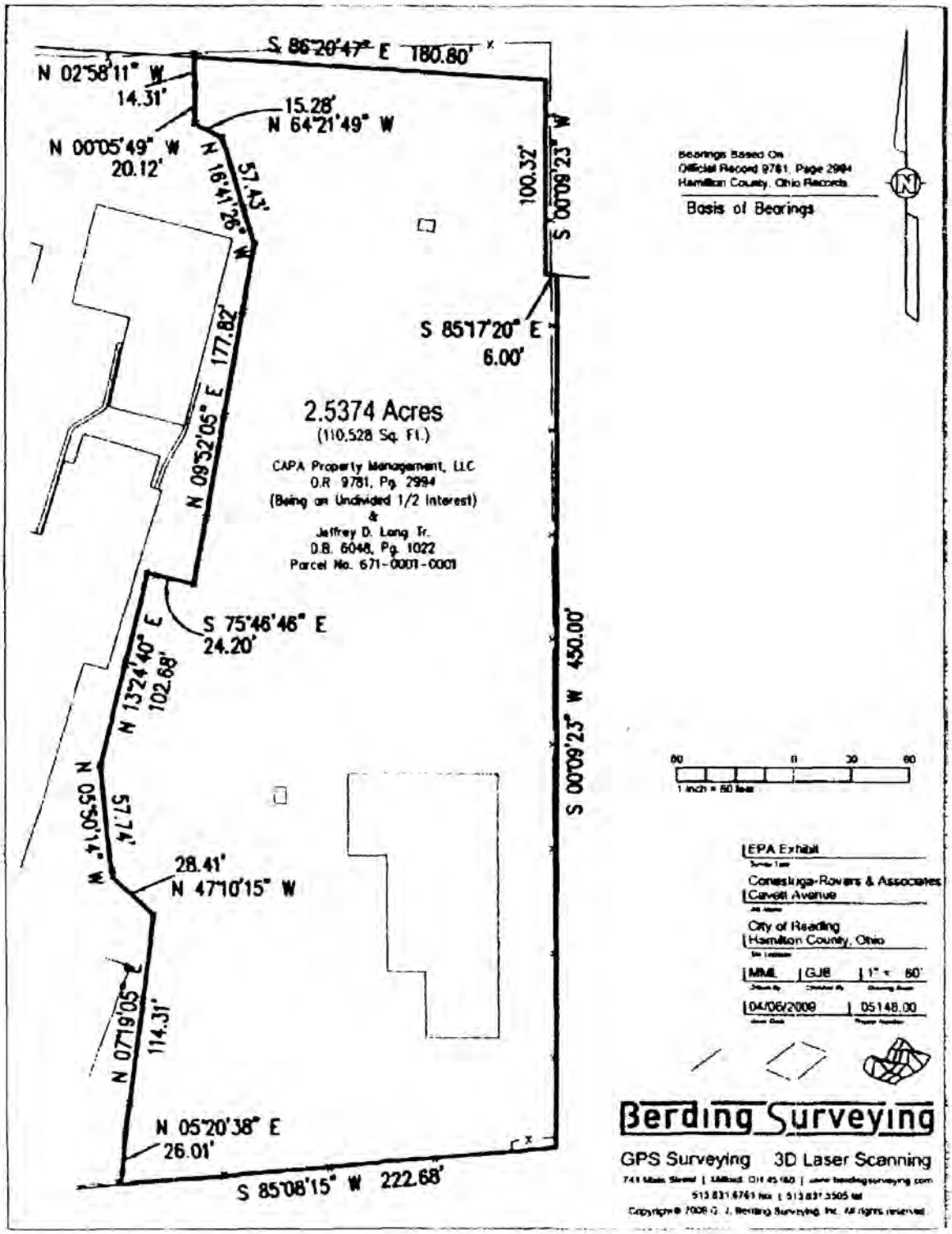


EXHIBIT C-2

Drawing of Restricted Area



11219 1973

APPENDIX D

Pristine Public Notice and Interviews

Classifieds

To advertise, visit:
classifieds.cincinnati.com

- Classifieds Phone: **855.288.3511**
- Classifieds Email: **classifieds@enquirer.com**
- Public Notices/Legals Email: **legalads@enquirer.com**

OFFICIAL PUBLICATION OFFICIAL PUBLICATION OFFICIAL PUBLICATION

EPA

EPA Begins Review of Pristine Inc. Superfund Site

Reading, Ohio

The U.S. Environmental Protection Agency is conducting a five-year review of the Pristine Inc. Superfund site at 410 Cavett Ave. in Reading. The Superfund law requires regular checkups of sites that have been cleaned up – with waste managed on-site – to make sure the cleanup continues to protect people and the environment. This is the sixth five-year review of this site.

The cleanup of chemical contamination at the former liquid waste disposal facility consisted of placing a cover over the site, conducting thermal soil treatment, installing a groundwater pumping and treating system, long-term monitoring, and limiting the use of and access to the site.

More information is available at the Public Library of Cincinnati and Hamilton County, Reading Branch, 9001 Reading Road, Reading, and at *www.epa.gov/superfund/pristine*. The review should be completed by the end of August.

The five-year review is an opportunity for you to tell EPA about site conditions and any concerns you have. Please submit your comments by May 1. Contact:

Adrian Palomeque
Community Involvement Coordinator
312-353-2035
palomeque.adrian@epa.gov

Judy Canova
Remedial Project Manager
312-353-7997
canova.judy@epa.gov

You may also call EPA toll-free at 800-621-8431, 9 a.m. to 5:30 p.m., weekdays.

No bids may be withdrawn LPC / Public Forum

Real Estate Services

EQUAL HOUSING OPPORTUNITY

Equal Housing Opportunity
All real estate advertising in this newspaper is subject to the Federal Fair Housing Act of 1968 which makes it illegal to advertise any preference, limitation or discrimination based on race, color, religion, sex, national origin, handicap or familial status or an intention to make any such preference, limitation or discrimination.

This newspaper will not knowingly accept any advertising for real estate which is in violation of the law. Our readers are hereby informed that all dwellings advertised in this newspaper are available on an equal opportunity basis.

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PUBLISHER'S NOTICE
All real estate advertised herein is subject to the Federal Fair Housing Act, which makes it illegal to advertise any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial status, or national origin, or intention to make any such preference, limitation, or discrimination.
We will not knowingly accept any advertising for real estate which is in violation of the law. All persons are hereby informed that all dwellings advertised are available on an equal opportunity basis.

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Walton, KYWalton Village Apts

Garage Sales

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FAIRFIELD OH, 45014

Wood inventory for wood workers, metal working tools, welding tables & welding supplies, work benches, tool cabinet, inventory of steel & more.

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STARTING MARCH 20
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DEALER SETUP $15
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513.903.5444

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BUYING-Ole guitars, & old musical instruments. Any condition, the older the better! Call/text: 937-767-2226

BUYING-Ole guitars, & old musical instruments. Any condition, the older the better! Call/text: 937-767-2226

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PRISTINE 5 Year Review Interview
Scott Glum
12/14/2020

Thoughts on Pristine Site: A lot of progress has been made in terms of the pump and treat; comparing plume maps from beginning of extraction and today. There are definite signs of progress. Increased pumping at EW-4 appears to be controlling plume migration. We will be able to evaluate this as monitoring goes on. However, soil remedy in question. Soil remedy may be protective for industrial use. However, looking at EW-1 and downgradient wells, contamination may still exist in soil that poses a leaching threat to ground water. It appears that the contamination source has not been controlled/eliminated, given that concentrations of 1,2-DCA and other VOCs persist in ground water even though pumping has been ongoing since 1997. Don't know if it is subaqueous or vadose; seems source area is limiting the effectiveness of the remedy.

PRPs wanted MnA because of the limited amount of VOC lbs. recovery in extraction wells. However, question remains why concentrations did not decrease beyond a certain point. It looks like a source remains and needs to be assessed and addressed. It seems like Pristine is open to looking for a source that poses a leaching threat to groundwater.

Not aware of any potable use wells in the vicinity of Pristine other than Wyoming wells on the other side of the Mill Creek valley; Reading closed since 1994. There may be industrial non-potable wells to the south of the site (Sawbrook Industries?). Mill Creek valley aquifer was historically overstressed by industrial use pumping in the 1940s and 1950s; non-potable use wellfield owned by Southwest Ohio Water Company near Great Miami River used by GE. Half a dozen major industries in Mill Creek Valley rely on this water instead of Mill Creek groundwater. As a result, water table elevation has increased by about 100' in Mill Creek Valley aquifer since 1950s. GE is pumping perched and upper and lower aquifer groundwater at about 150 gpm to contain their plume. To Scott's knowledge, GE has not delineated or addressed the plume beyond their facility boundary.

Pristine has environmental covenant on site to restrict wells and water use. Hamilton County health department has jurisdiction over private wells; must obtain a permit to install a well. They are aware of the Mill Creek Valley aquifer problem. Greater Cincinnati Water Works provides water to most communities including Reading. Wyoming well field is still active. Lockland closed their wells in Lockland area and relocated them further north in Mill Creek Valley to Sharonville. Sawbrook Industries to south of Pristine may have industrial water supply well, previously evaluated by USGS. They are downgradient of the plume as defined during the RI. Don't know if they are still pumping. Public water supplied to many communities in the area since 1930's. May want to contact Hamilton County Health Dept. Will provide name and contact information.

Sampling for PFAS and 1,4-D at Pristine has been very limited. Most of 1,4-D so far is below Ohio's unrestricted potable use standard of 6.7 ug/l (OEPA Voluntary Action Program health-based number 10^{-5}). Recommend additional round of sampling to confirm. No concern that site is a major source of 1,4-D. Same issue on PFAS/PFOA. Ohio PFAS action plan mirrors EPA's PFOA+PFAS 70 ng/l. Goal/plan was for OEPA to sample every water supply (>1000) by end of 2020.

Hi pressure gas line issue – testimony from Ohio EPA as the line is close to Pristine. As-built locations of buried force-mains along West Street in Reading provided to Duke Energy. Potential to damage EW-4 and EW-3 force main.

Regional contamination issue; was clear when site was pumping at 400-450 gpm. It did look like regional contamination from GE was moving towards the site. In the early 2000s, TCE, cis-1,2-DCE, and vinyl chloride had increasing trends at some Pristine monitoring wells that did not appear to be attributable to Pristine. To control the GE plume and allow GE to address their plume, it was requested for Pristine to decrease their pumping rates. In the past 5-10 years GE began interim measures to control their plume; they are not pumping beyond their boundary and are containing their plume. The off-site portion of their plume has been cut-off. Not sure if Pristine still has an impact from GE. Some wells to north and west on the western side of Mill Creek without 1,2-DCA that have TCE may have the TCE source from GE. Site dynamics have changed with reduced pumping rate at Pristine.

Hopefully remedy performance would improve by controlling, eliminating, or treating the source on Pristine property. No current human exposure to the plume at present.

PRISTINE 5 Year Review Interview
Ron Pitzer
December 17, 2020

Trustees have been sharing thoughts in video conferences with EPA over the past six months.

Relationship with EPA – since the time Ron has been involved (and before), the Trustees and EPA have had a good relationship. Appreciate the efforts to return to a positive working relationship. Appreciate Jennifer and Tim's participation in previous meetings.

Made some good improvements but need to be on same track with how SSPA is being used. Feel their lead (PRP) has been reestablished. Want to continue agreeing on what needs to be done and how it should be done. System broke down and Ron feels we are returning to the way it should be.

Trustees are encouraged with how things are going with GHD and SSPA having conversations apart from EPA/Trustees. Timeline they have worked out looks favorable.

Thoughts on the remedy: A lot of progress has been made over the past 40 years considering the appearance of the site in the 80s. Ron was a process engineer and ran an incineration operation for waste from Pristine 40 years ago when the site was closed. Rob Robertson keeps it well maintained. Need to consider property use in path to closure. A lot of formerly active facilities around Pristine are no longer operational.

Still looking for a reasonable path to closure using good field data.

Think MNA might have a place long-term in a path to closure. Might be a logical approach. Not ready to dismiss it. Off-site plume data doesn't look that bad except for a few spots.

Pump and treat system is working as designed. EW-1 was "super cleaned" and flow rates were increased by 10 gpm; seems to have helped. Not sure it was biofouling. Looks like the system is doing what it is designed to do. Rob Robertson is doing a good job. Not concerned about the treatment system hardware as it can be easily maintained. The main concern is with the control system which is 20+ years old. Electronics are not readily available for existing system. Replacing the control system is a financial concern, not a performance issue. Believe Rob can monitor remotely but must go to site to fix it.

Have not done anything regarding Urban Setting Designation. Talked with the Port Authority. Looked into it. More efficient use of time is what is currently happening to move project forward.

Thoughts on Duke Energy's gas line – Made sure that Duke is aware of the Pristine underground pipes and control cables and coordinate with Rob and Henry. Will take preemptive measures when they dig; will shut EW-4 off when they are digging around it to control a water release in case Duke breaks one of the Pristine pipes. More concerned about the control cables being damaged as the entire cable from the plant to the extraction wells would have to be replaced if damaged.

Other activities around the Pristine site include the City widening Mill Creek for flood control west of the Morton Site. Judy requested Ron send location of this feature on a map. Pristine monitored the area while they were doing their work to confirm nothing was damaged.

Another project that Pristine monitored was the installation of a new stormwater storage tank by the MSD north of the site. The construction of the tank did not involve any Pristine systems but we monitored the work anyway.

Formica (north of site) sold a small portion of their property to the Port. Really not that close to Pristine. North American headquarters. Manufacturing and research ongoing on Formica property.

No other activities in site vicinity.

PRISTINE 5 Year Review Interview
Henry Cooke
December 17, 2020

Henry has been involved since 1991; knows the history well. Started pumping 23 years ago, 150 gpm system including upper aquifer and three lower aquifer extraction wells. In 1998, turned on 300 gpm system. Henry assembles annual report; tracking pounds of VOCs removed; first five years quite a bit was removed. Total pounds removed per year is currently less than 30 lbs; treating a lot of water and removing very little VOCs. Consistently running system at 98% on-line or above based on the aeration transfer pump. Perform a lot of maintenance on mechanical parts. Control system is pretty dated, the PLC, Allen-Bradley purchased in 1996. Has a number of cards in it that may fail; must have PLC to run the system. The PLC communicates with a computer with an earlier version of Windows (Windows 7 with a 32 bit processor). Computer runs 24/7 and has failed a couple of times; hard to replace. May likely need replace PLC; $300,000-$400,000 expense. May eventually be an issue. The rest of the system, pumps, level controls, etc. are easy to replace. PLC operating life is typically approximately20 years. Have to modify software when pumping rates are changed.

Treatment system is a mixture of both components of 150 gpm and 300 gpm system. Rob does a good job maintaining system.

Feel the remediation system is addressing the plume although efficiency is low; treating high volume of water.

ISVE pumping system had calcium built up in lines which reduced flow. Did some acid treatment in a loop around the lines and dissolved the buildup within the ISVE lines.

Every year, remove pumps and scrub screens of extraction wells; decided to use acid treatment at EW-1. EW-1 went from 39 gpm to 50 gpm and is now at maximum capacity. Rob checks depth to water in EW-1 to confirm it is not dropping too much. Currently 46 gpm. Aeration tank runs at 100 gpm. Did not do acid treatment of EW-4. April/May is when shutdown occurred for two weeks.

For its age, plant runs well.

Dow site looks abandoned. CDS site has various tenants that seem to come and go; paving firms, parking taxis. North of the site Reading MSD operates a treatment system added a 1.2 million gallon holding tank to manage combined sewer overflow.

Grain silos are still present but do not appear to be used. Someone is storing equipment there.

Construction of the Duke gas line - exact location of line still needs to be finalized. Pristine has a number of wells that could be impacted. GW-64, 65, 66 Upper Aquifer; MW-82 Lower Aquifer all located east of RR tracks opposite of treatment plant may be impacted by construction of gas line. Gas line will cross over Pristine force mains in 3 locations on West Street. Will have to shut down EW-4 while gas line is being constructed. Will probably be putting gas line under the force main. It is difficult to repair damaged control cables that control operation of the off-site extraction wells; most likely if they were damaged the cable would have to be replaced all the way from plant to extraction wells.

GW-108 VOC levels were in ppm range in 2008; very low VOCs recovered presently. Interesting to see if there Is a rebound if you shut it off.

City of Reading and Mill Creek Conservancy cut Mill Creek Embankment towards the east and made a place for it to overflow during storm events. Not a pond. Located to the west of Dow.

PRISTINE 5 Year Review Interview
Rob Robertson
December 17, 2020

Everything at the site is working good based on water quality analysis. System is getting older. Everybody wants costs to go down. After a system gets old, cost goes up because things wear out such as pumps. Some parts to repair the system are no longer available and sometimes equipment has to be replaced completely. Just about every pump has been rebuilt. Communications system between PLC and computer difficult to repair as system is old. Right now, the PLC is supported by manufacturer and will be for the next couple of years. Communication card runs 5,000 -6,000 dollars. Perform a lot of preventative maintenance.

PLC wiring is very complex.

In general system is running well.

Annually they bring out a crane to remove pumps from extraction wells; Rob checks the pumps and lines. Right now pumps are in decent shape based on his visual inspection. Biggest wear on pump is shut on and shut off. EW-1 is now being pumped from the bottom and pump does not shut off; before it was running a little hot. EW-4 shuts off only a few minutes at a time.per day. Put liners on pipes inside wells because of iron bacteria.

The Port Authority bought property next door (Morton) but nothing has happened since then; may be because of the virus. Pallet company and trucking company and asphalt company at Cincinnati Drum Site. North area has major construction at MSD plant; many trucks and vehicles moving dirt.

One school in the area has been demolished and razed, and another school built in a different location.

Underground force mains have been marked by utility locator in preparation for Duke Energy Gas line. Have drawings and photographs with laser lines.

Current system capable of 165 gpm; currently operating at 100 gpm.

PRISTINE 5 Year Review Interview
Patrick Ross
12/23/2020

Has been working 11 years for City of Reading as the city manager. Meets yearly with Henry Cooke (GHD) and Martha Farr (Trustee) for updates. Was not around when site became a Superfund site. Do not anticipate development of site but would like to see Pristine used for parking or greenspace. To south of Pristine site, bigger parcel of 26 acres (DOW site) purchased by Port Authority. Port Authority is working with a developer to bring revenue to city. Probably a couple of years before redevelopment will occur, most likely will be manufacturing. Would be nice to have Superfund designation removed; understand this is difficult. Understand no building can be done at the Pristine site but would like it to be tied in to redevelopment such as parking.

Want groundwater, soil, and soil vapor to be safe for use as a parking lot. Site is gated so it seems secure and out of the way so not a lot of unwanted guests. Reading water treatment plant was torn down, so not feasible to return to well field as source of drinking water.

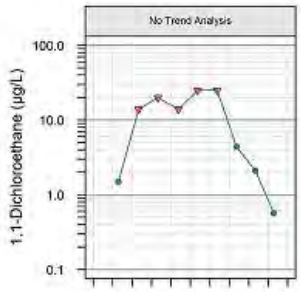
Duke energy pipeline not going through site but planned adjacent to Pristine and crossing some of the force mains; Patrick brought this up to EPA. Reading is opposed to the location. Duke's due diligence did not mention Superfund site within 100' of pipeline. Reading also brought this to the attention of GHD. This route was one of two proposed. Feel it was an issue of income and property ownership.

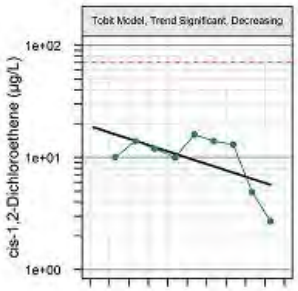
Fire chief has no concerns regarding Pristine from a health perspective. Know the site is adequately monitored; Reading has good communication with GHD. Reading performed a floodplain bench project near Mill Creek to keep water from overflowing bank; removed about 10,000 cubic yards.

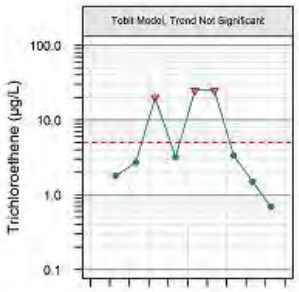
APPENDIX E

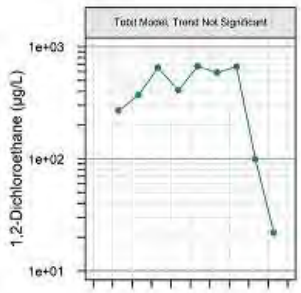
Pristine Site Data

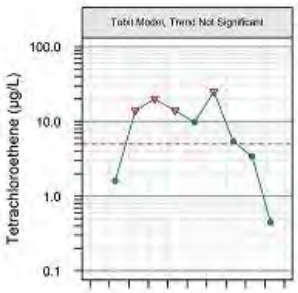
EW1

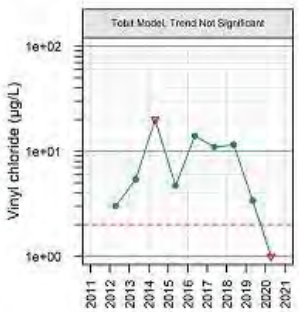


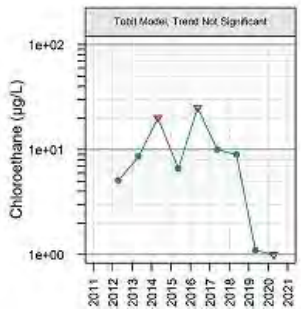


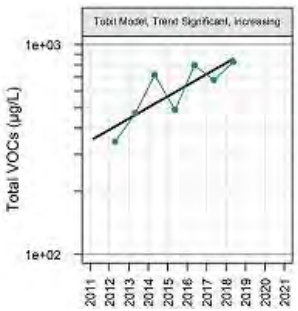


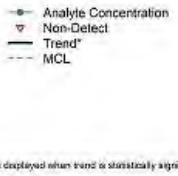








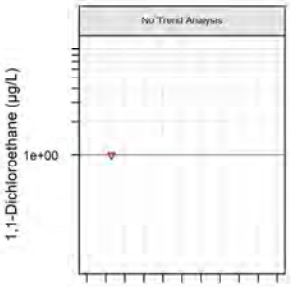


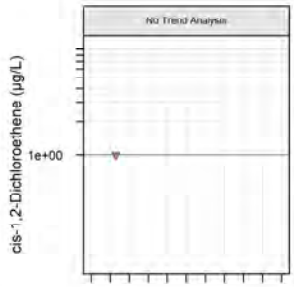


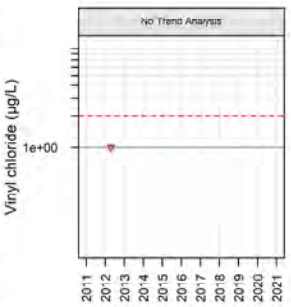
*Only displayed when trend is statistically significant

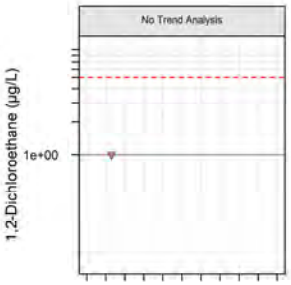
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

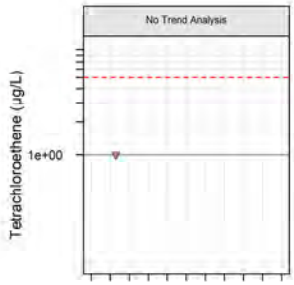
EW2



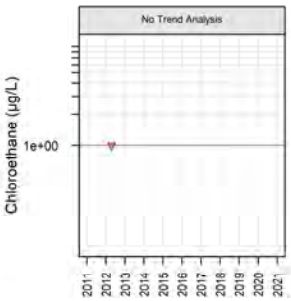


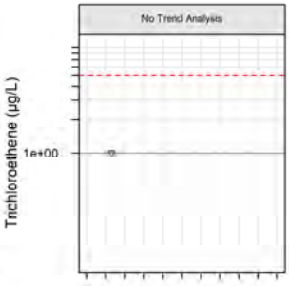


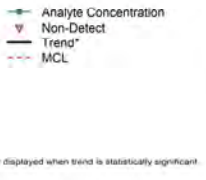




1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

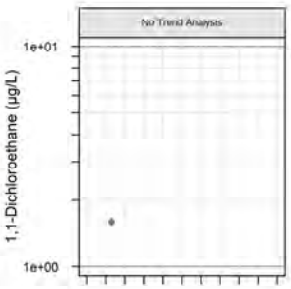


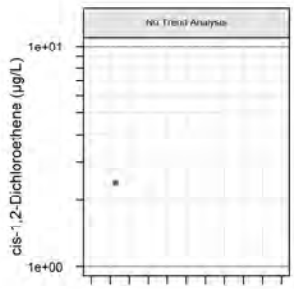


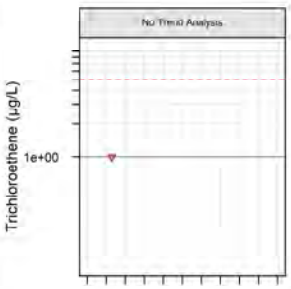


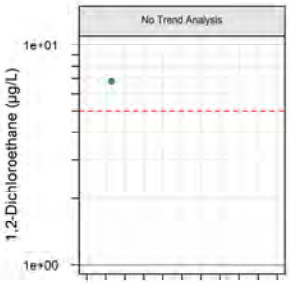
*Only displayed when trend is statistically significant

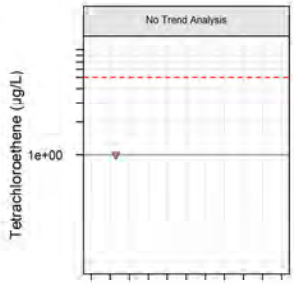
EW3

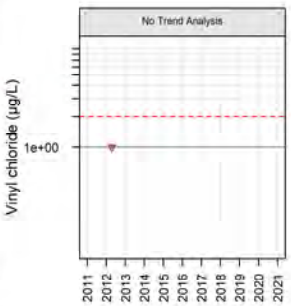


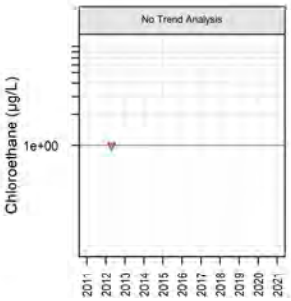


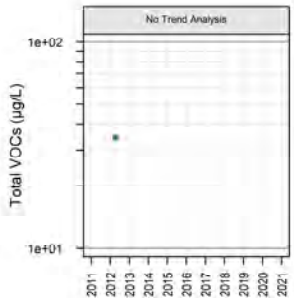










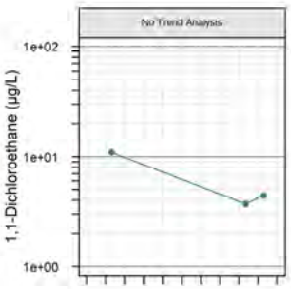


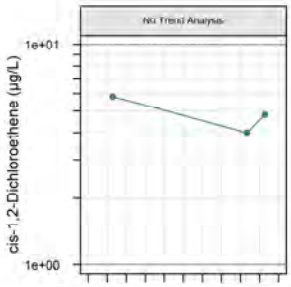
Analyte Concentration
Non-Detect
Trend*
MCL

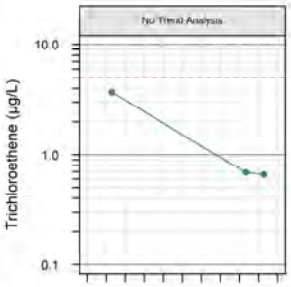
*Only displayed when trend is statistically significant

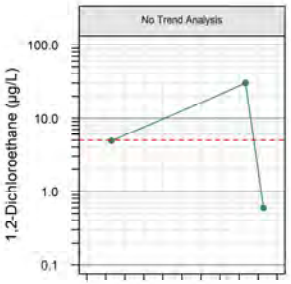
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

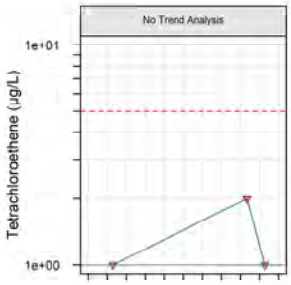
EW4

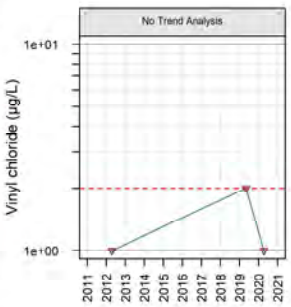


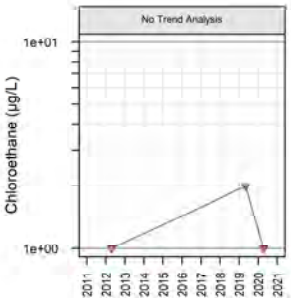


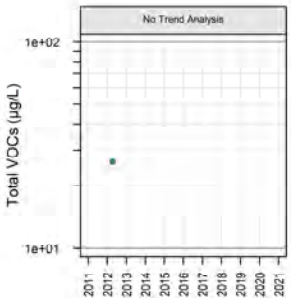


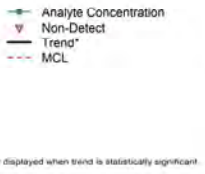








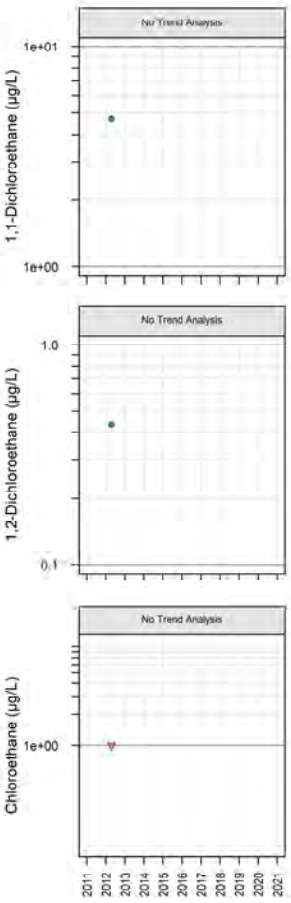


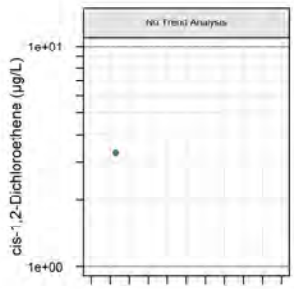


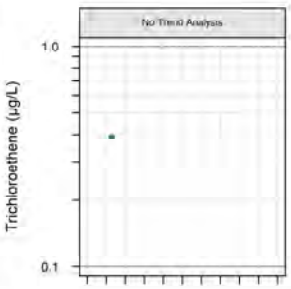
*Only displayed when trend is statistically significant

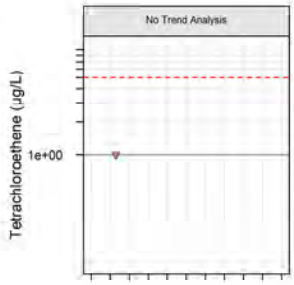
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

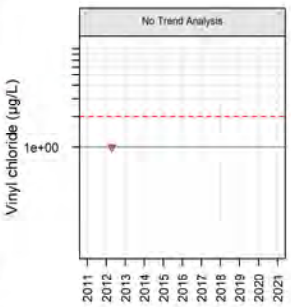
EW5

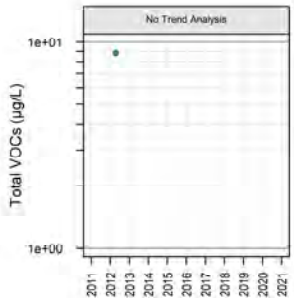


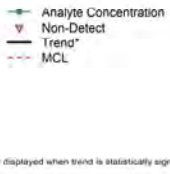








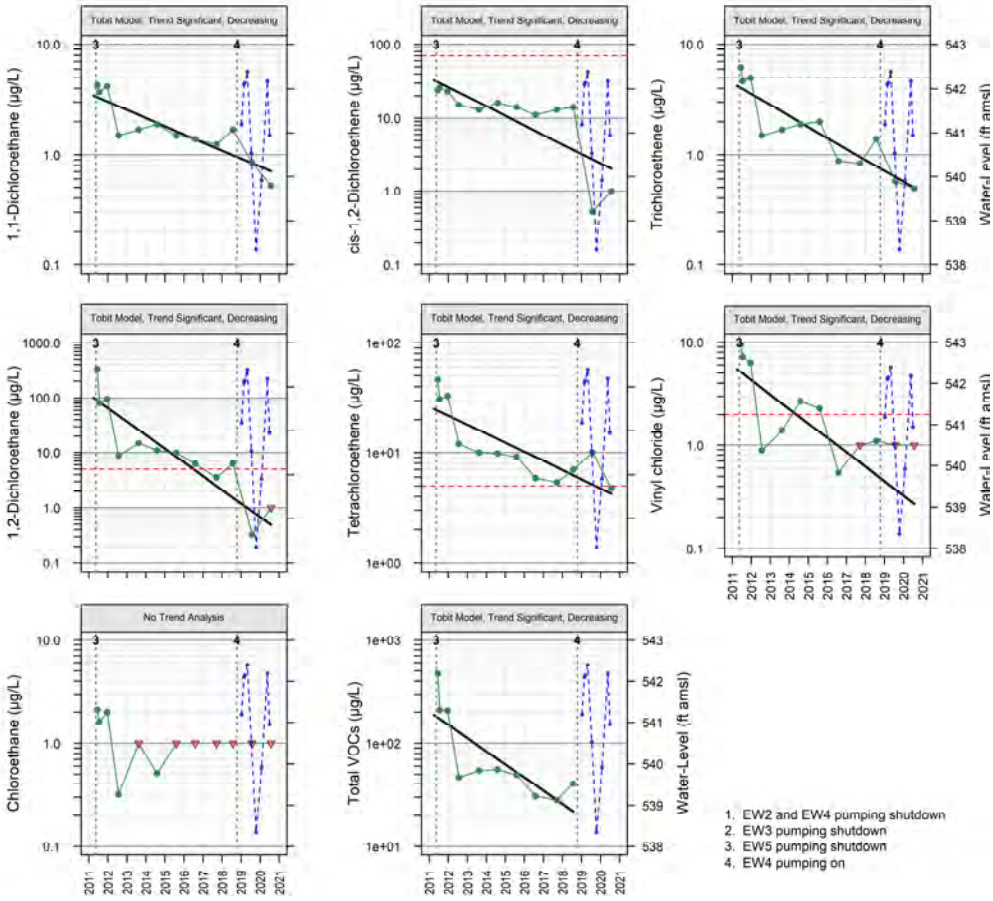




*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW108

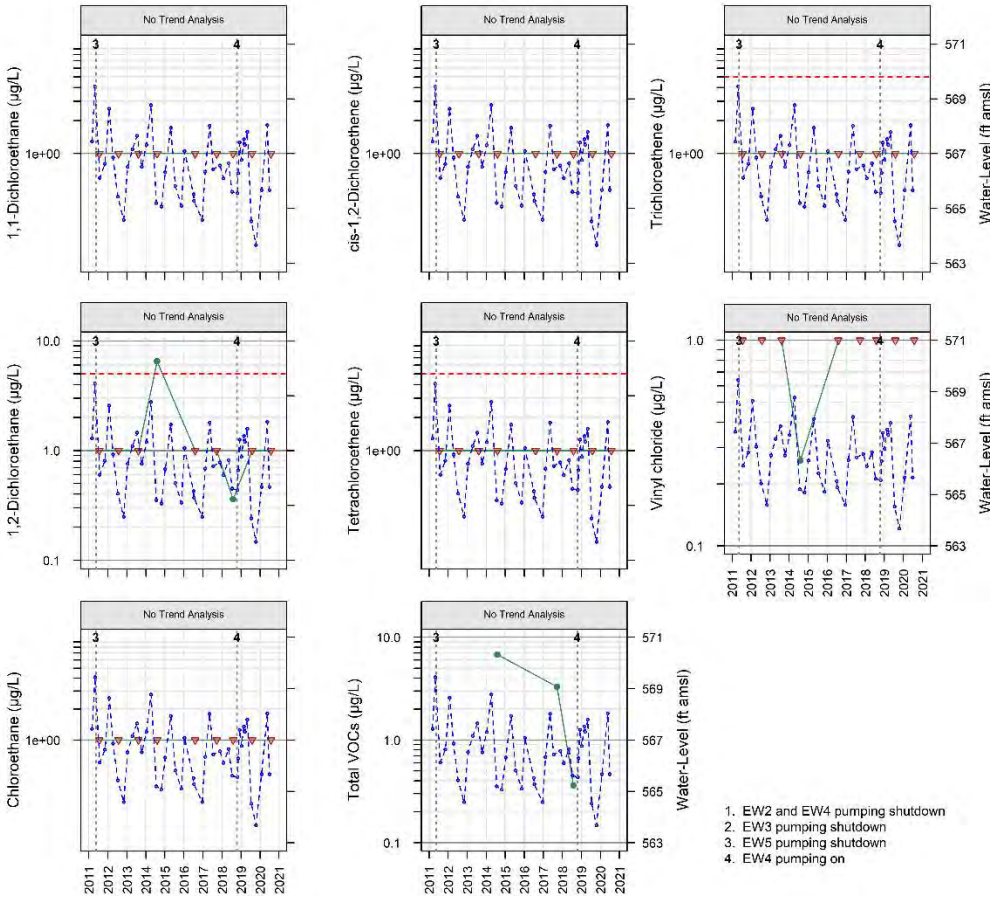


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW66

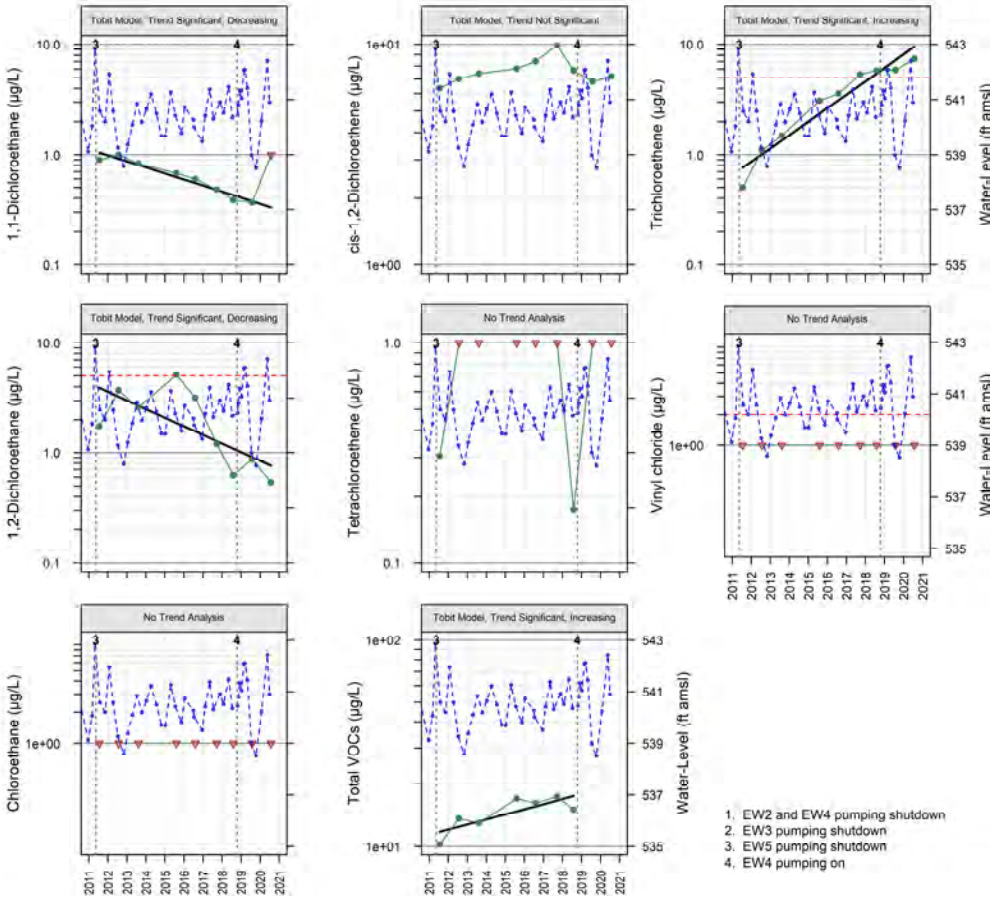


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW65

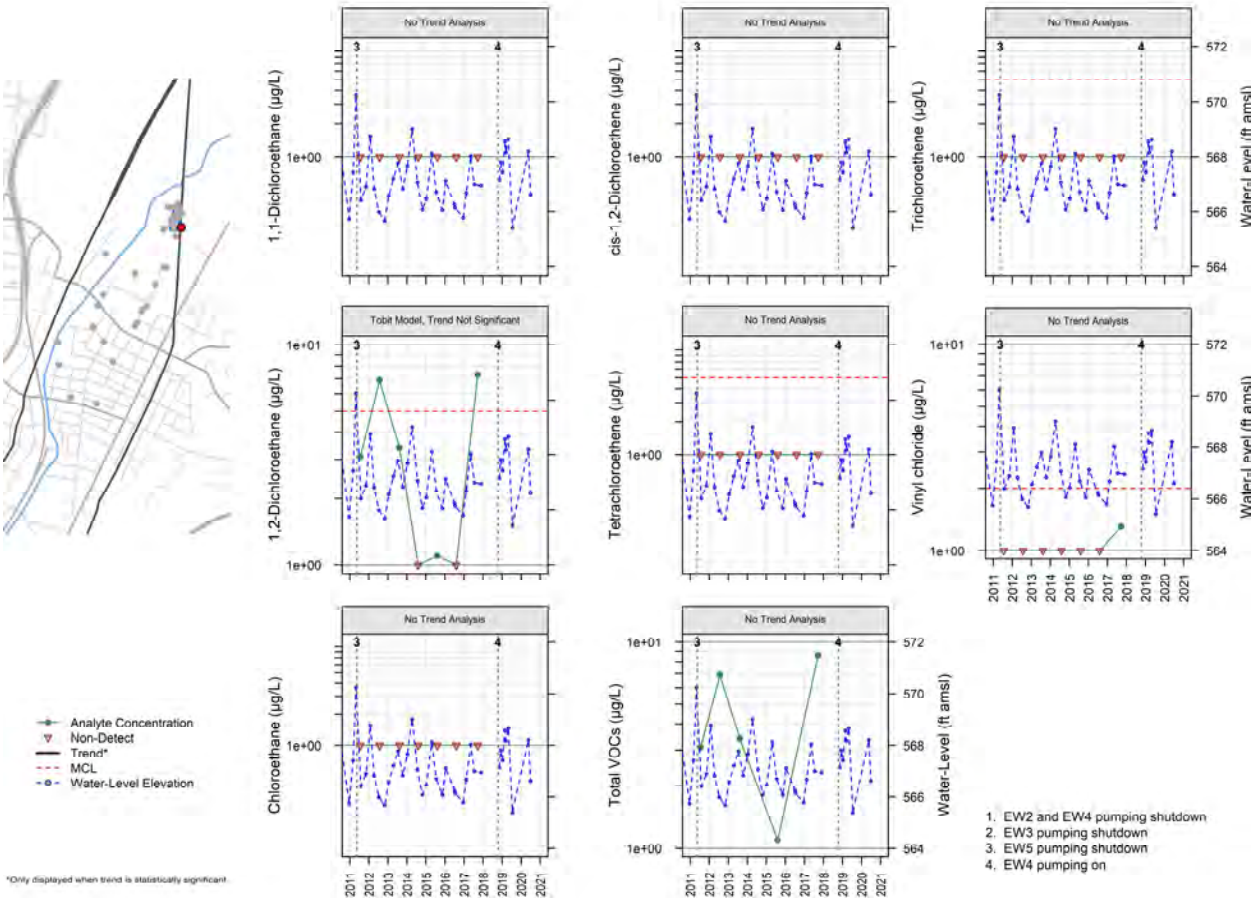


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

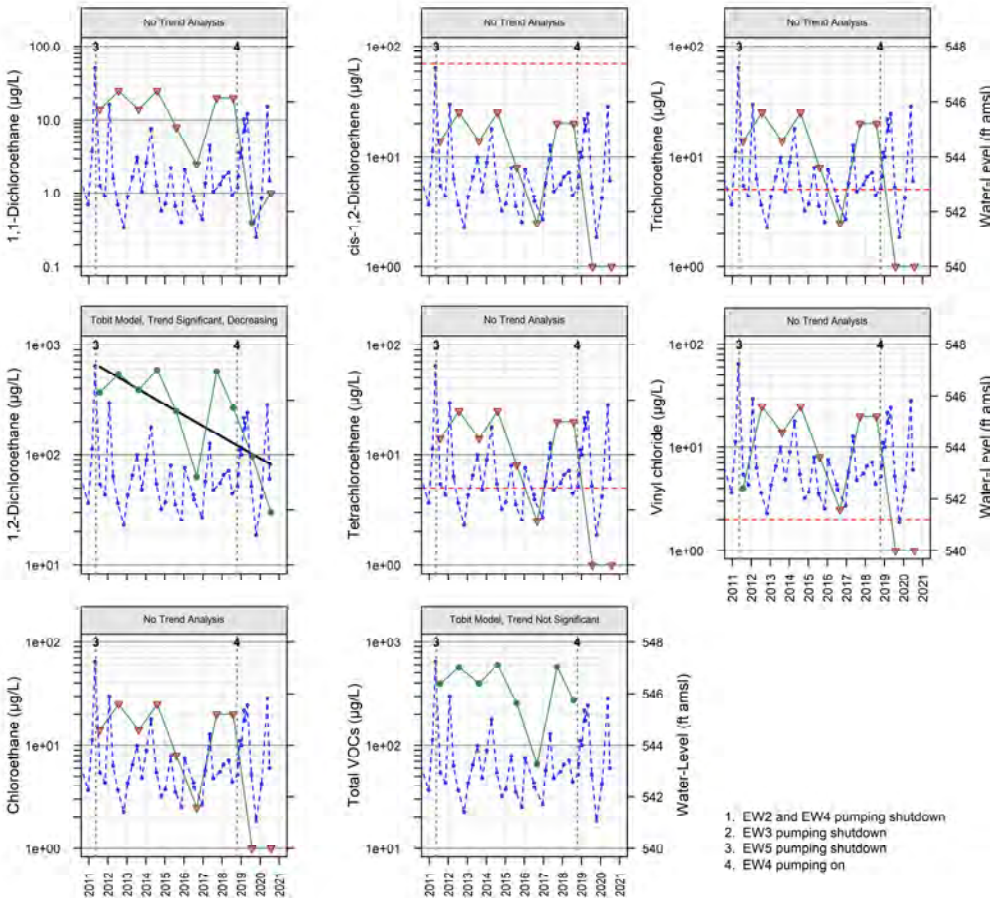
*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW64


No Trend Analysis
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
Tobit Model, Trend Not Significant
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
1e+00
1e+01
3
4
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
564
566
568
570
572
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW63

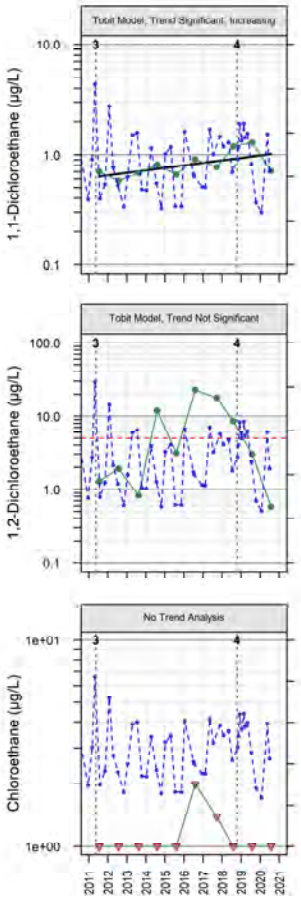


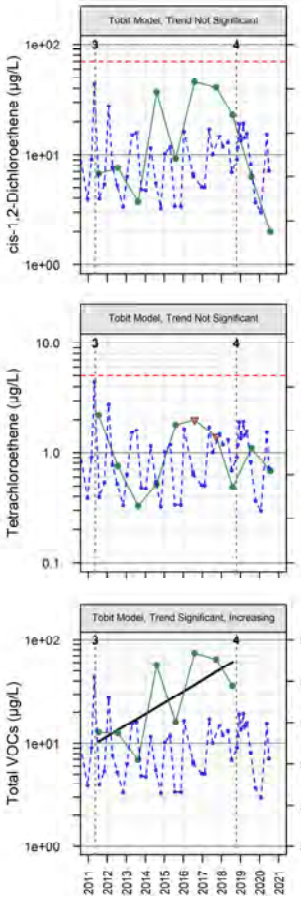
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

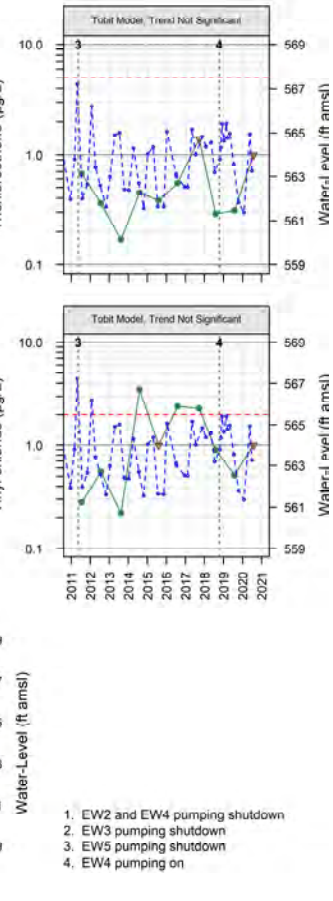
*Only displayed when trend is statistically significant

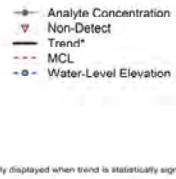
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW53





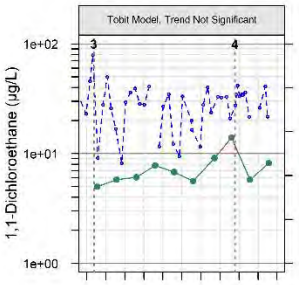


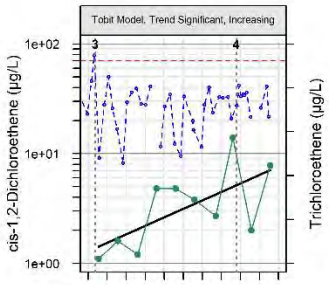


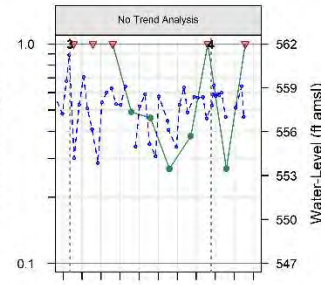
*Only displayed when trend is statistically significant

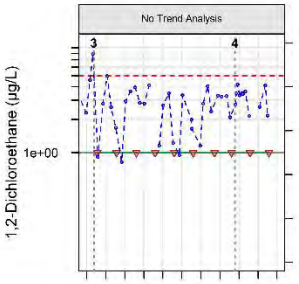
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

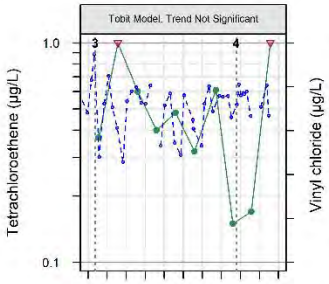
GW50

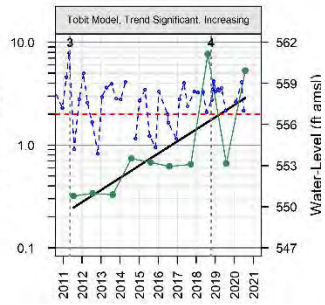


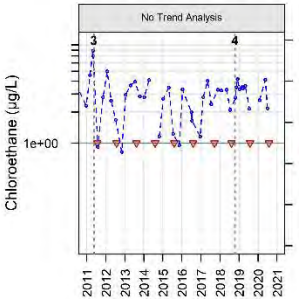


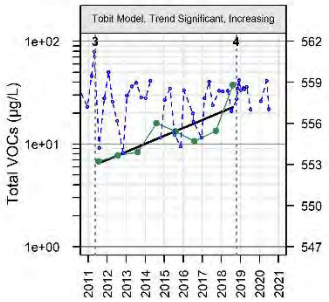










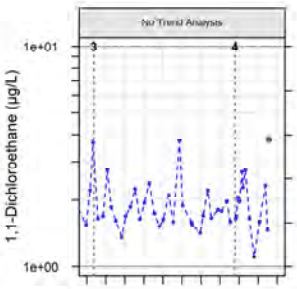


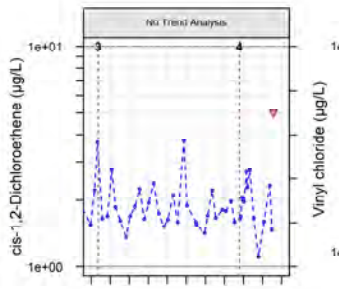
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

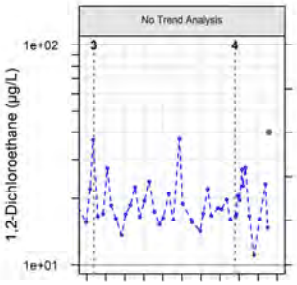
*Only displayed when trend is statistically significant

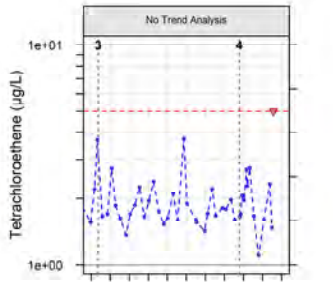
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

GW-P6

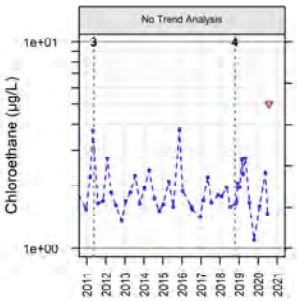


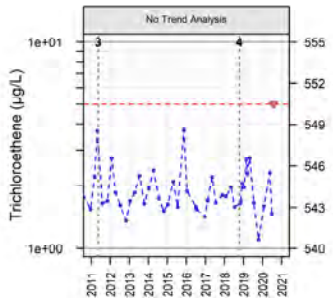






1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

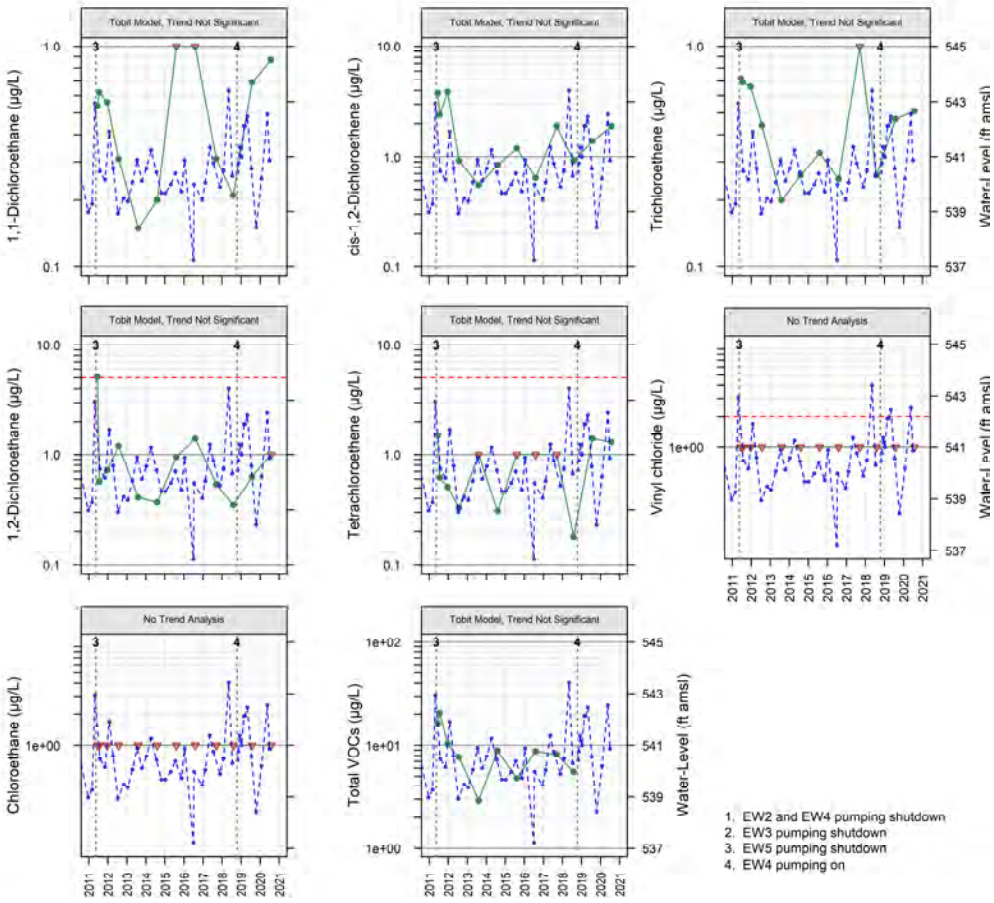




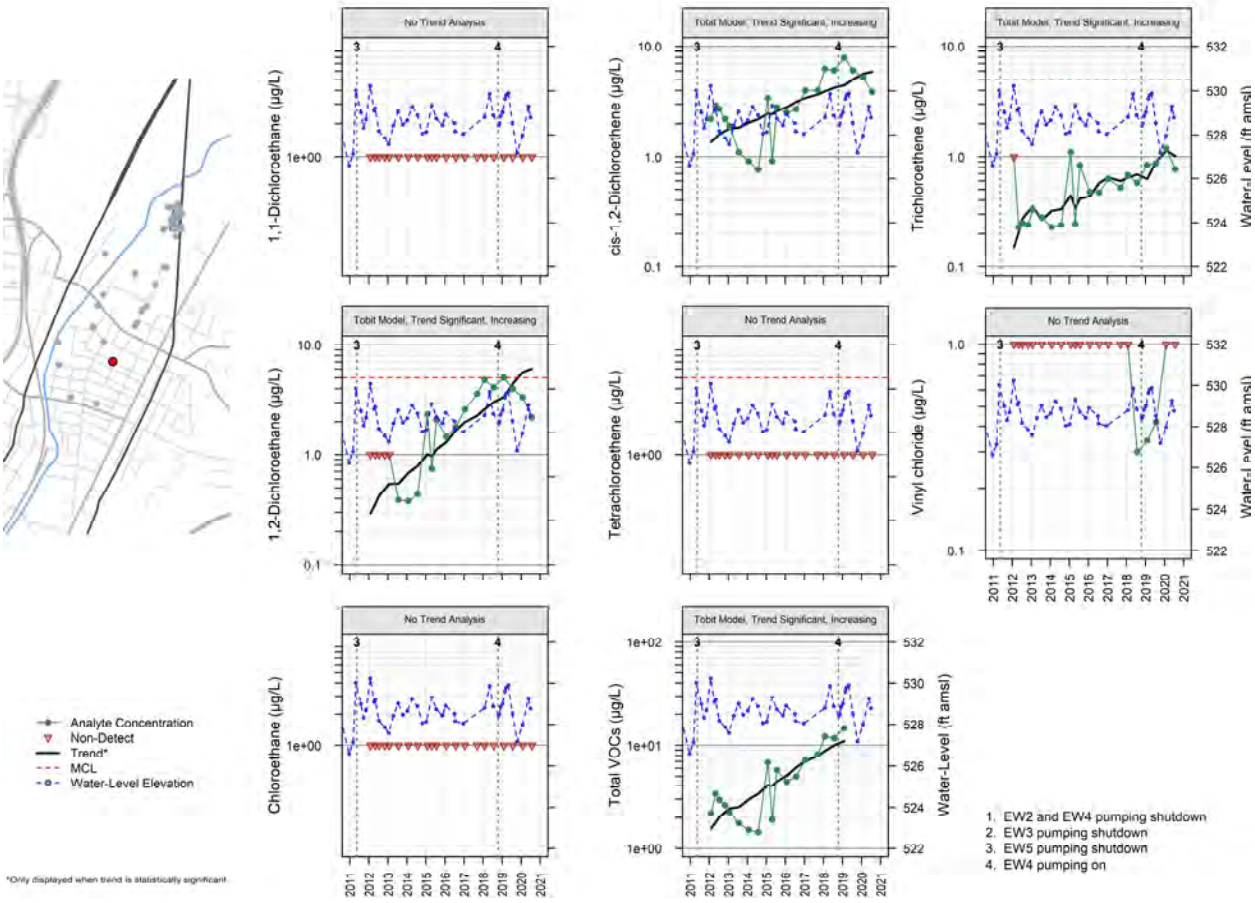
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

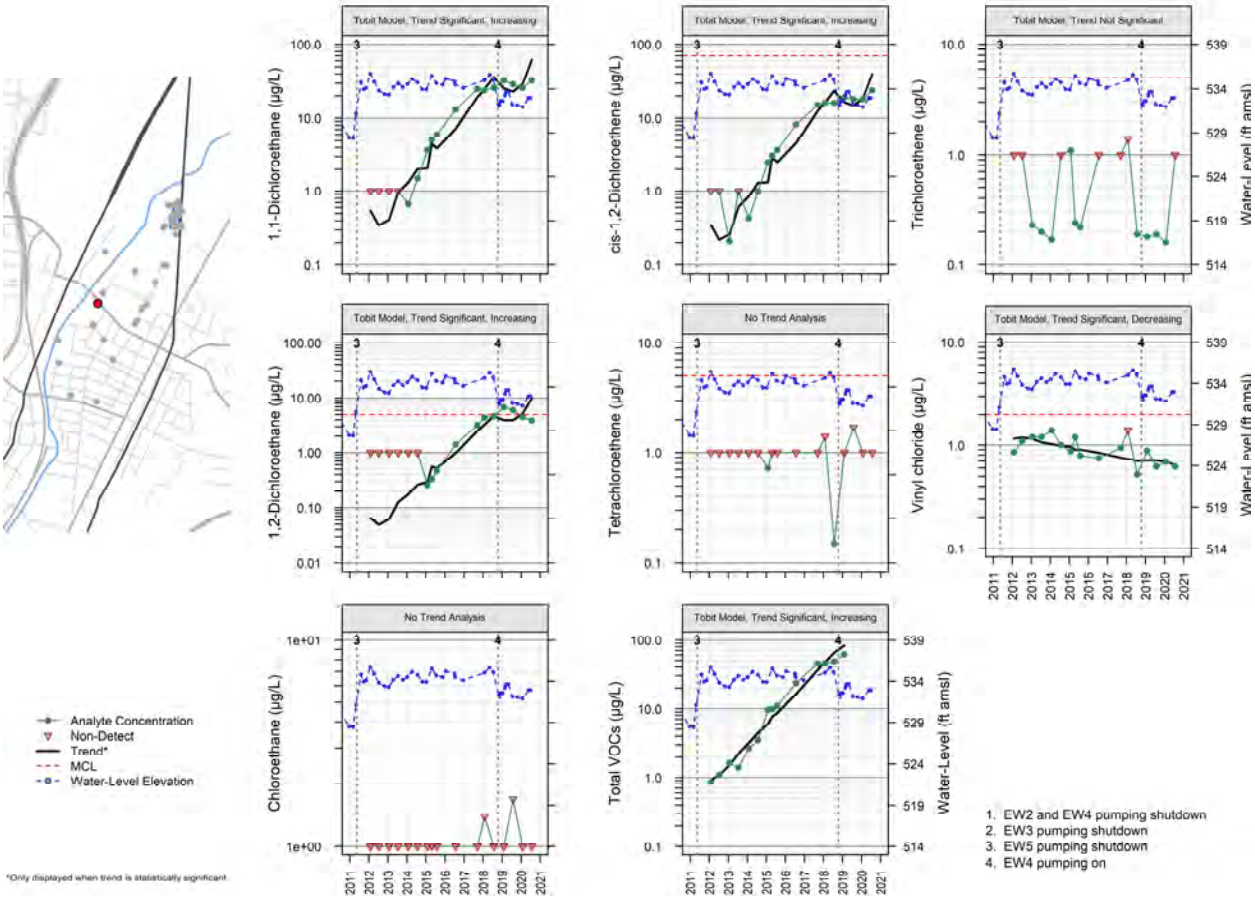
GW109


Tobit Model, Trend Not Significant
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
No Trend Analysis
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

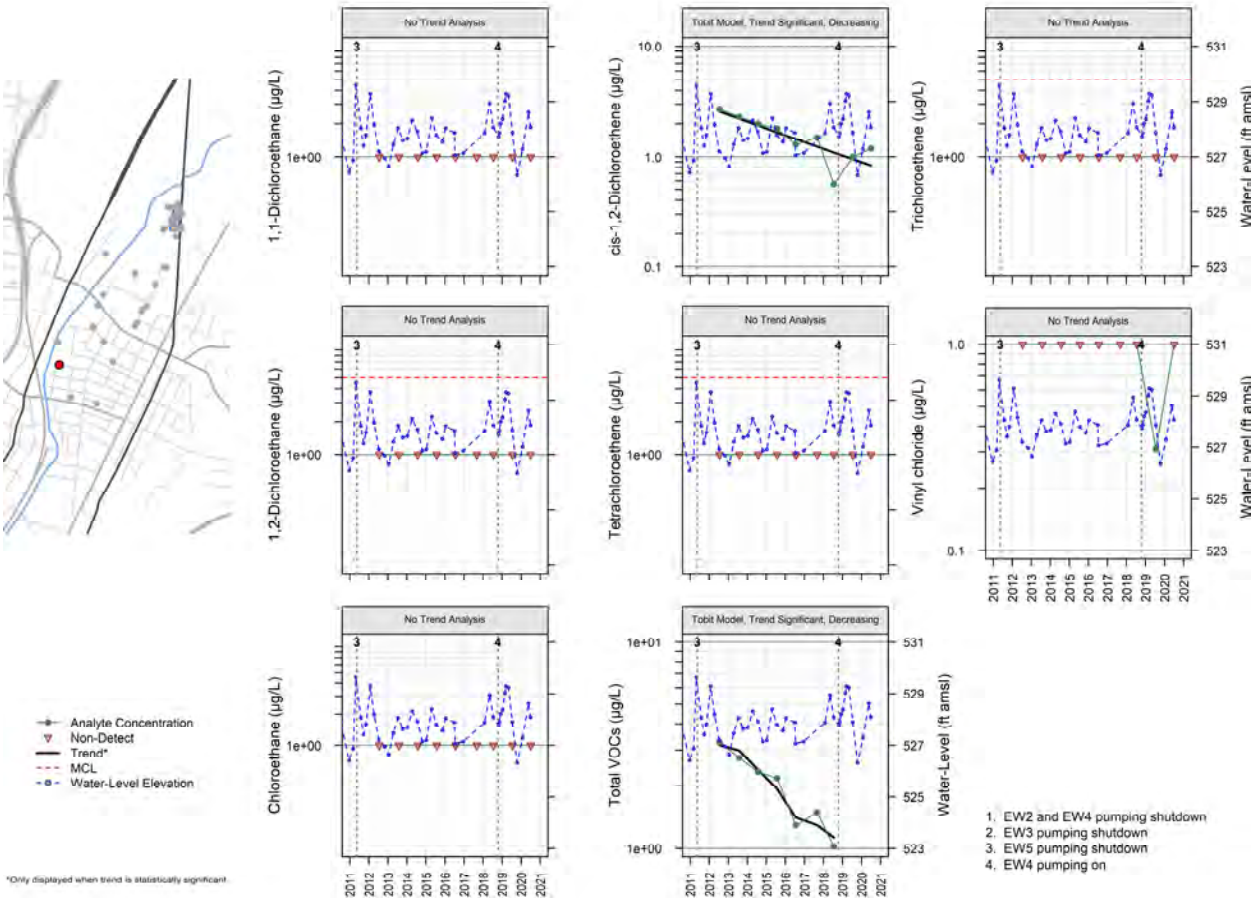
MW101


No Trend Analysis
Tobit Model, Trend Significant, Increasing
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

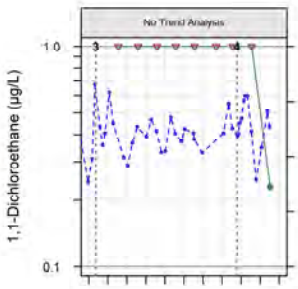
MW100

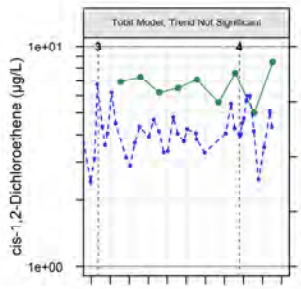

Tobit Model, Trend Significant, Increasing
1,1-Dichloroethane (µg/L)
Tobit Model, Trend Significant, Increasing
cis-1,2-Dichloroethene (µg/L)
Tobit Model, Trend Not Significant
Trichloroethene (µg/L)
Water-Level Elevation (ft amsl)
Tobit Model, Trend Significant, Increasing
1,2-Dichloroethane (µg/L)
No Trend Analysis
Tetrachloroethene (µg/L)
Tobit Model, Trend Significant, Decreasing
Vinyl chloride (µg/L)
No Trend Analysis
Chloroethane (µg/L)
Tobit Model, Trend Significant, Increasing
Total VOCs (µg/L)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

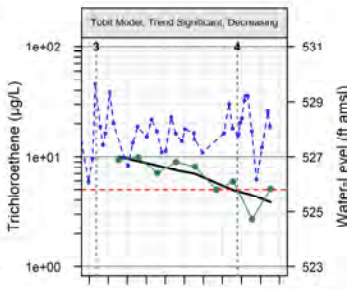
MW99

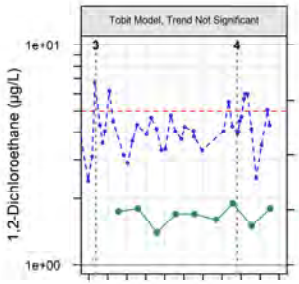

No Trend Analysis
1,1-Dichloroethane (µg/L)
Total Model, Trend Significant, Decreasing
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
Water-Level (ft amsl)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Tobit Model, Trend Significant, Decreasing
Total VOCs (µg/L)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

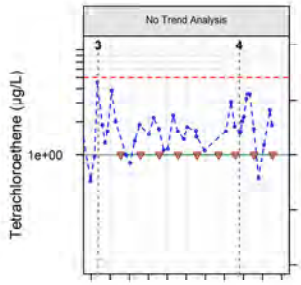
MW98

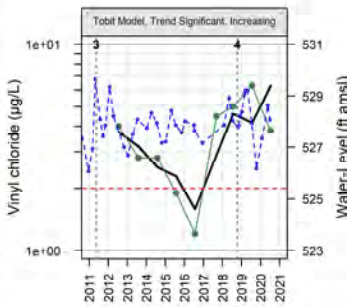


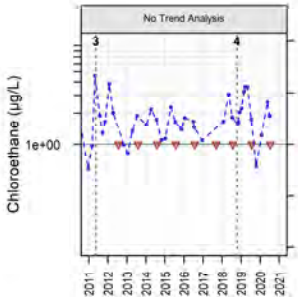


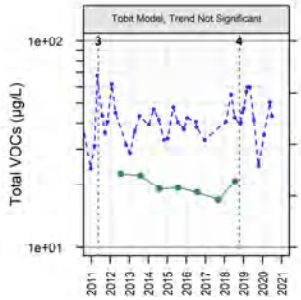


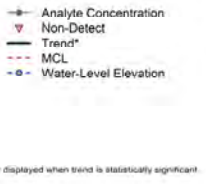








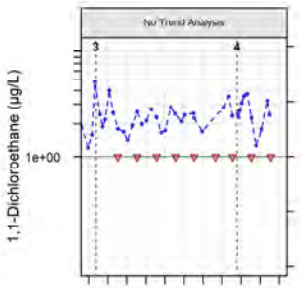


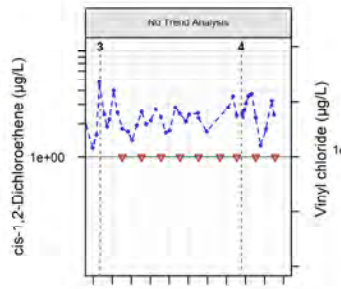


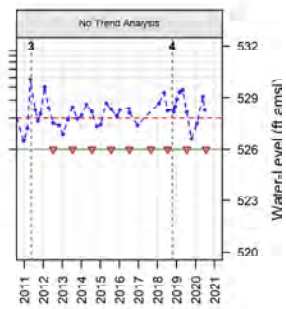
*Only displayed when trend is statistically significant

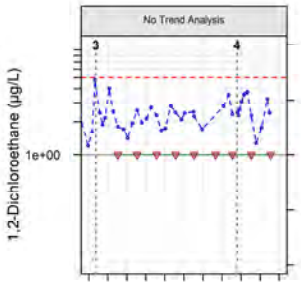
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

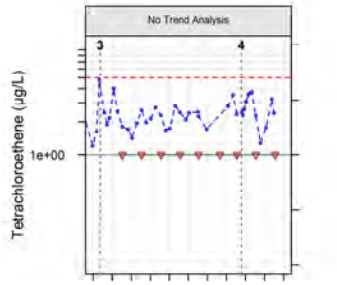
MW97



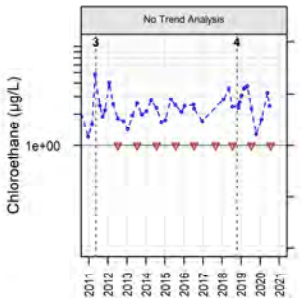


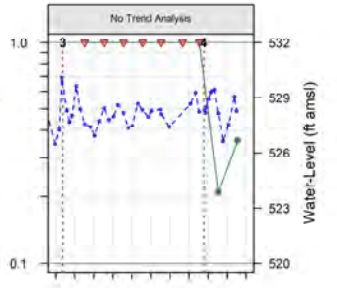


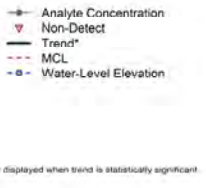




1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

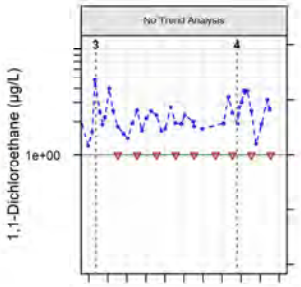


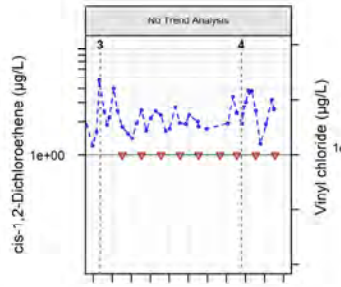


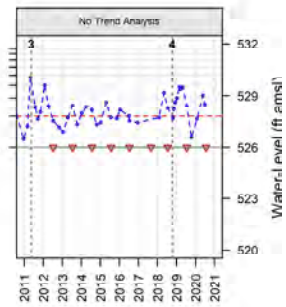


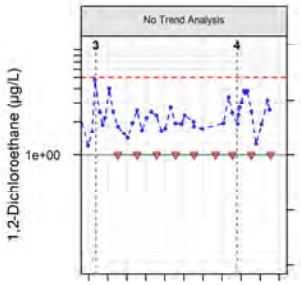
*Only displayed when trend is statistically significant

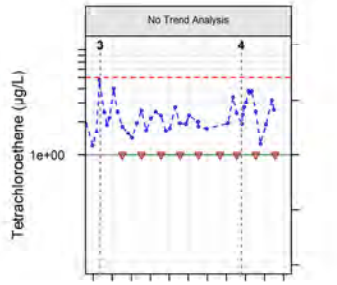
MW96



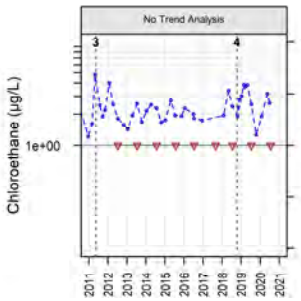


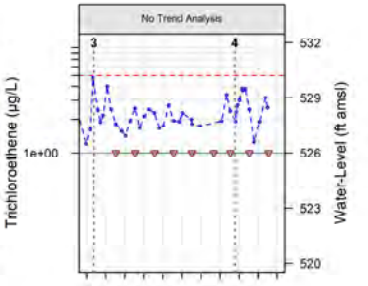


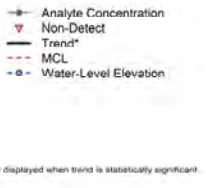




1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on





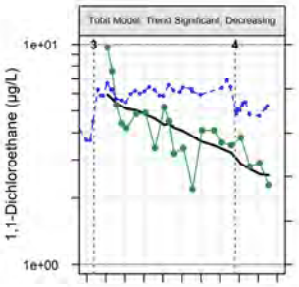


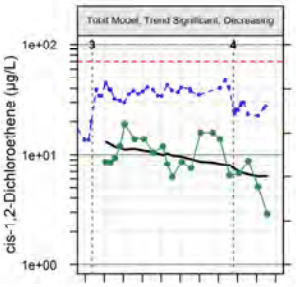
*Only displayed when trend is statistically significant

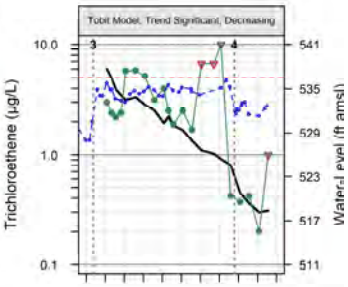
MW95

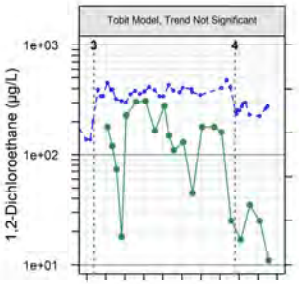
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

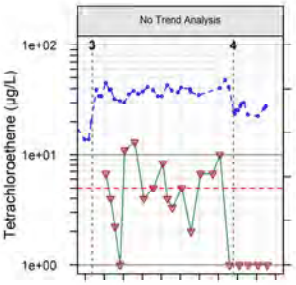
*Only displayed when trend is statistically significant

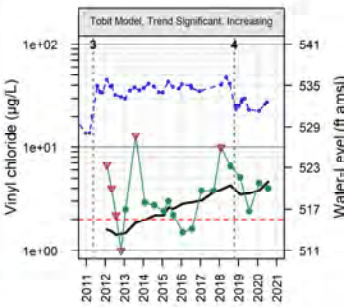


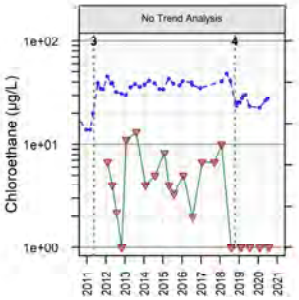


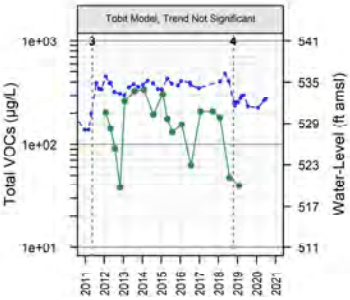






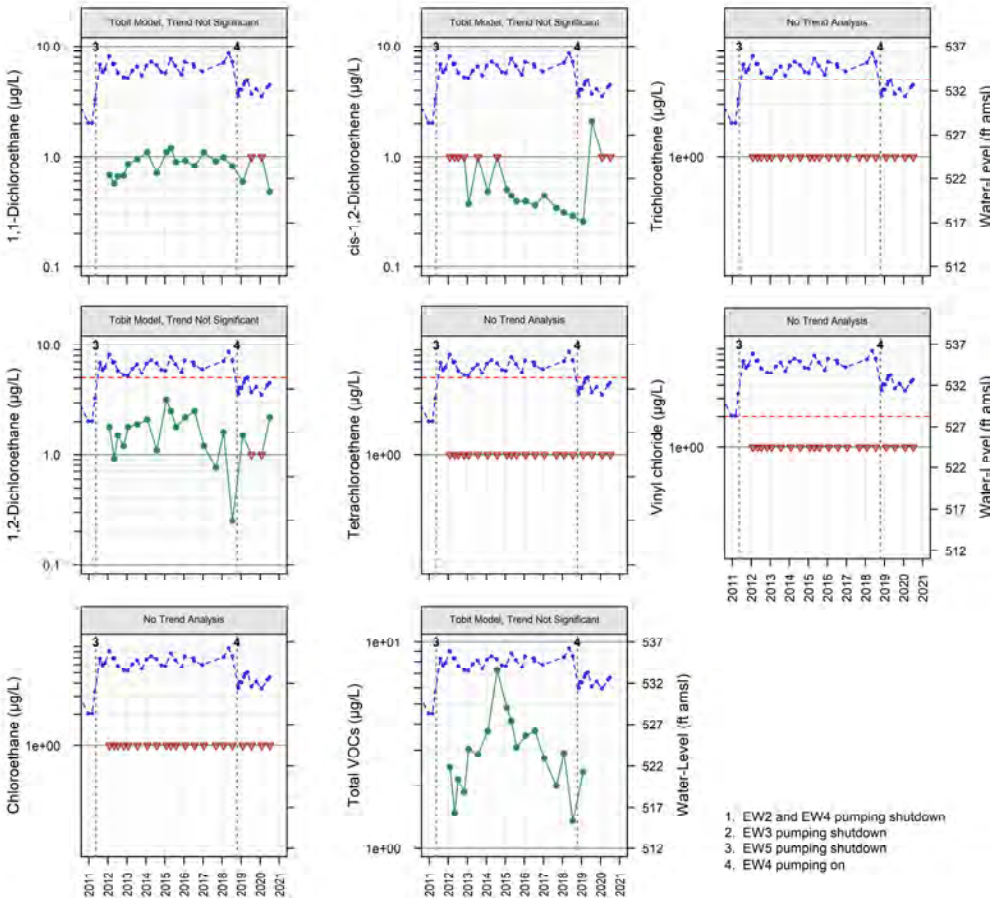






1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW94

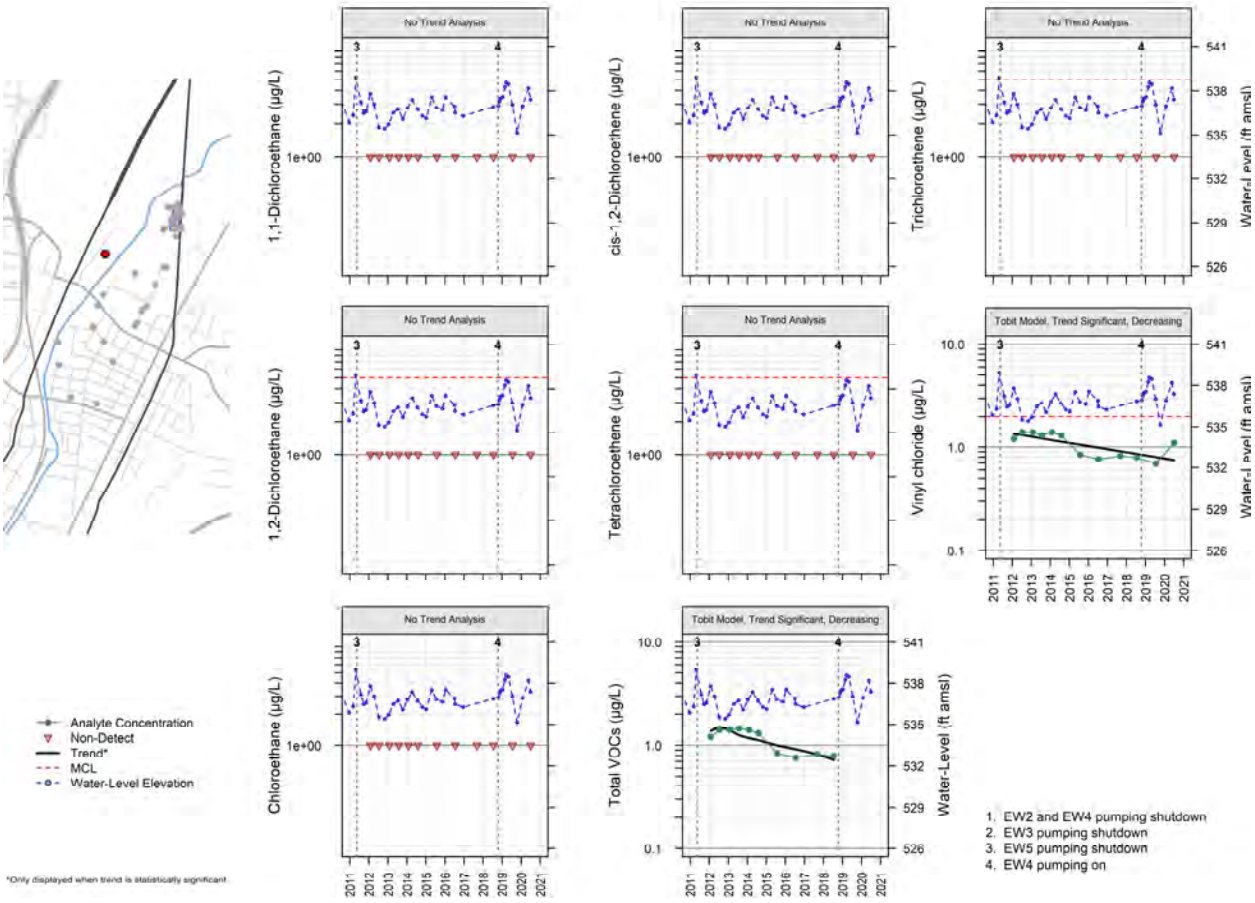


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

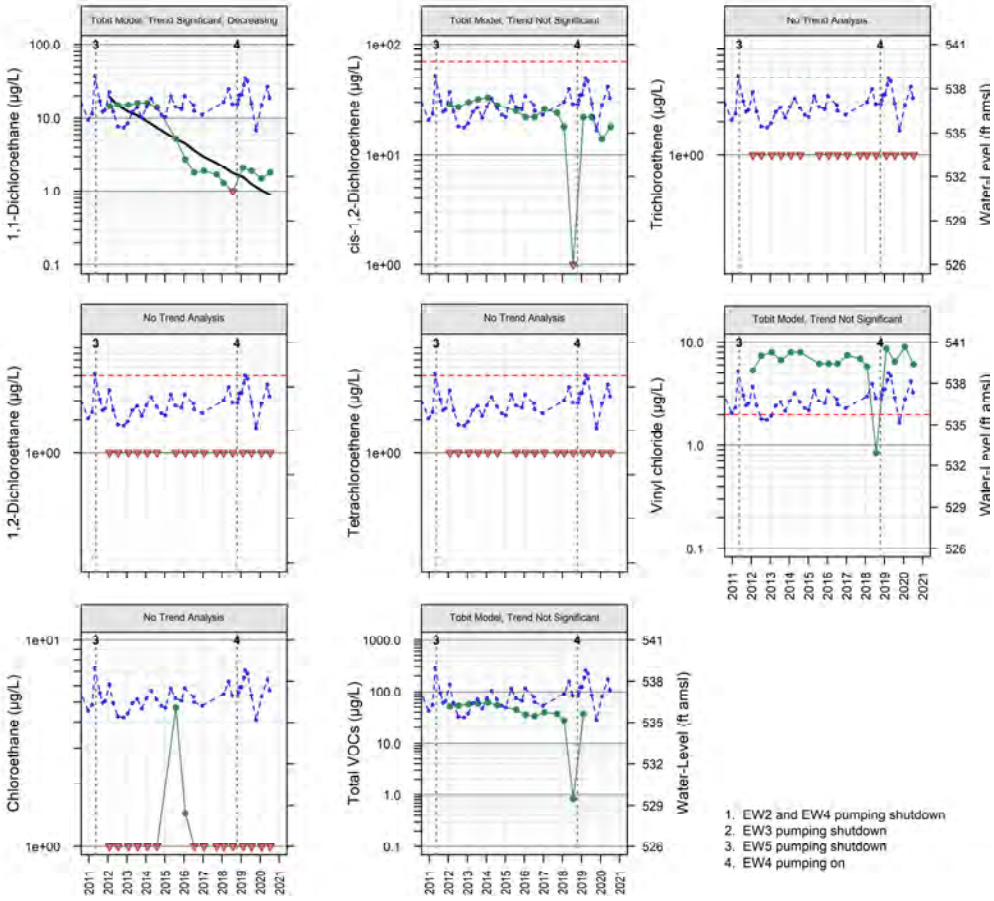
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW93



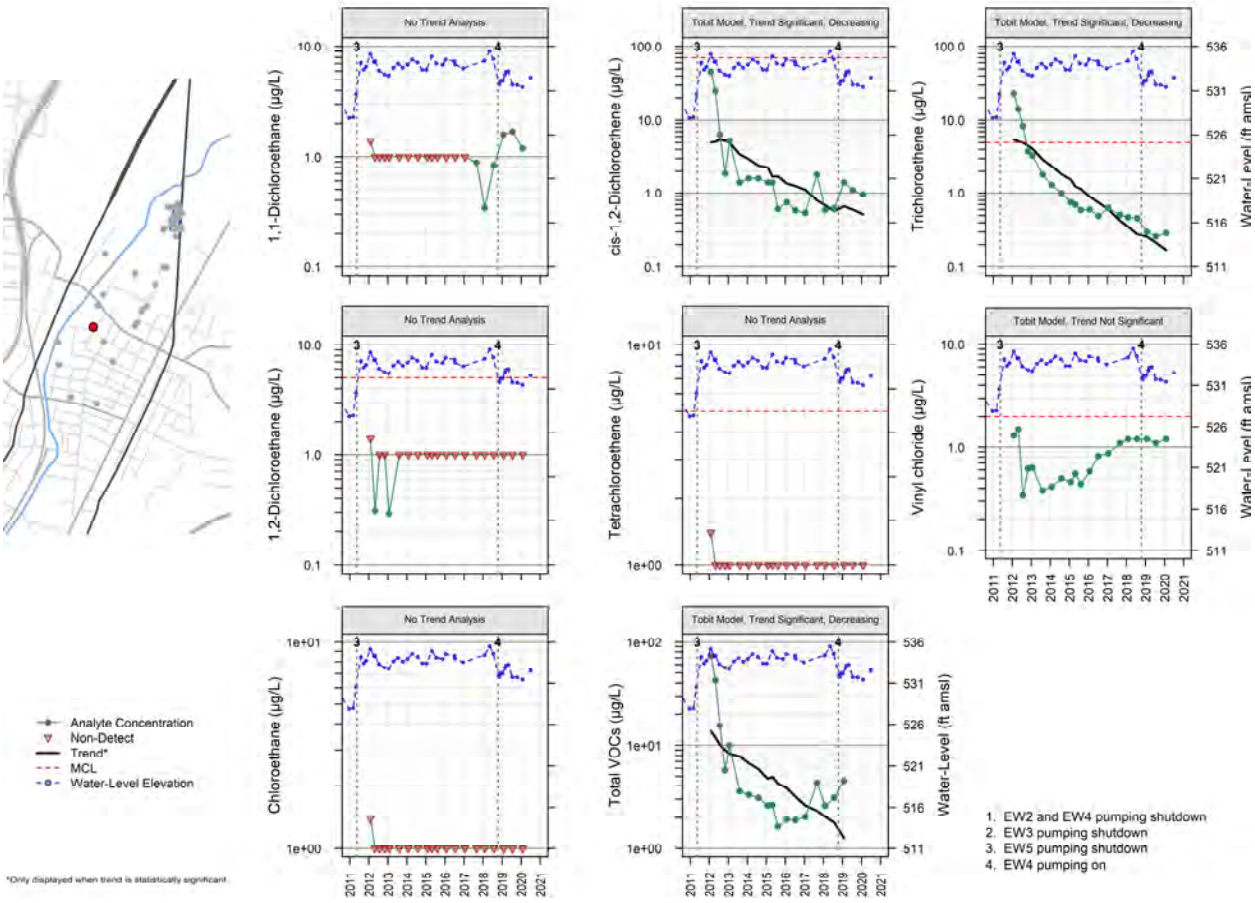
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW92

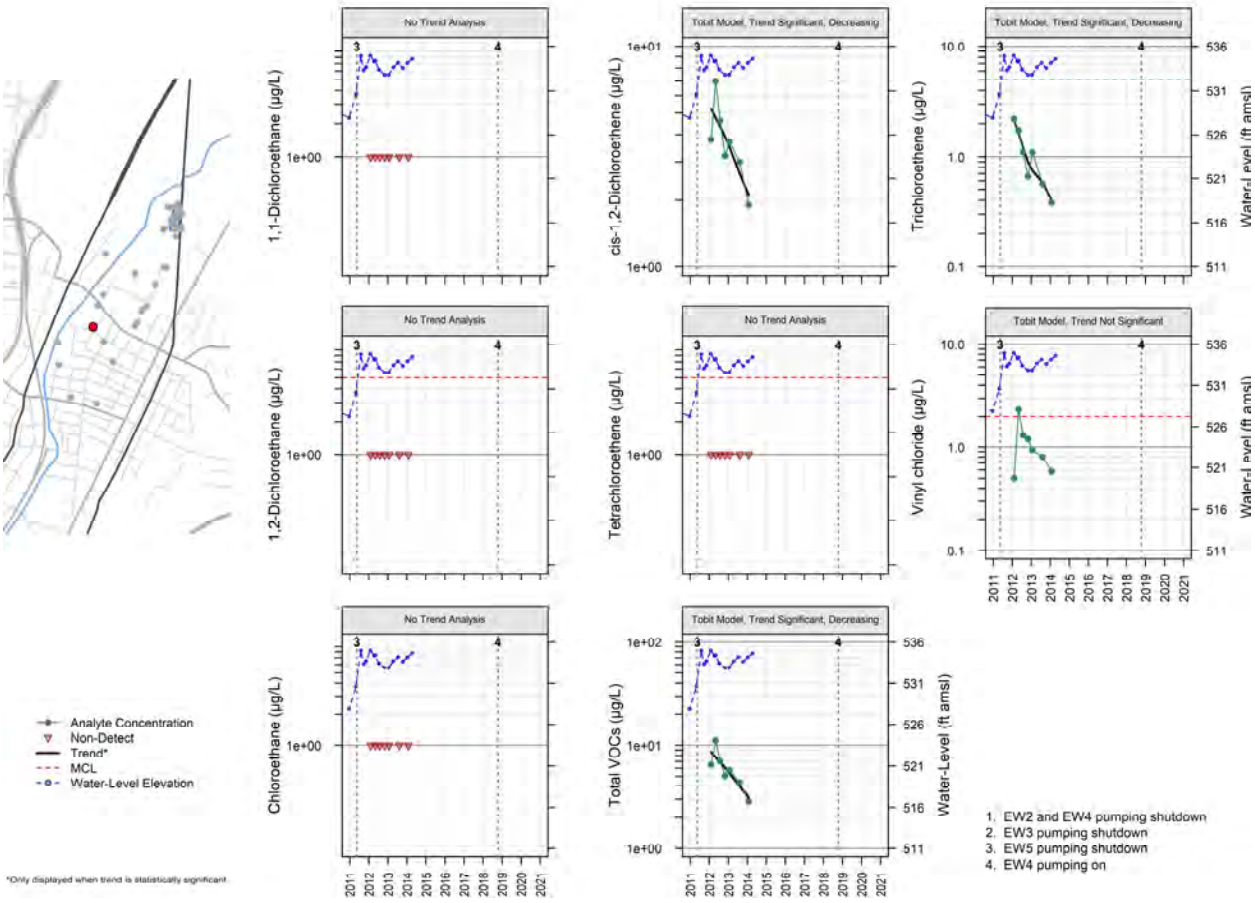


1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

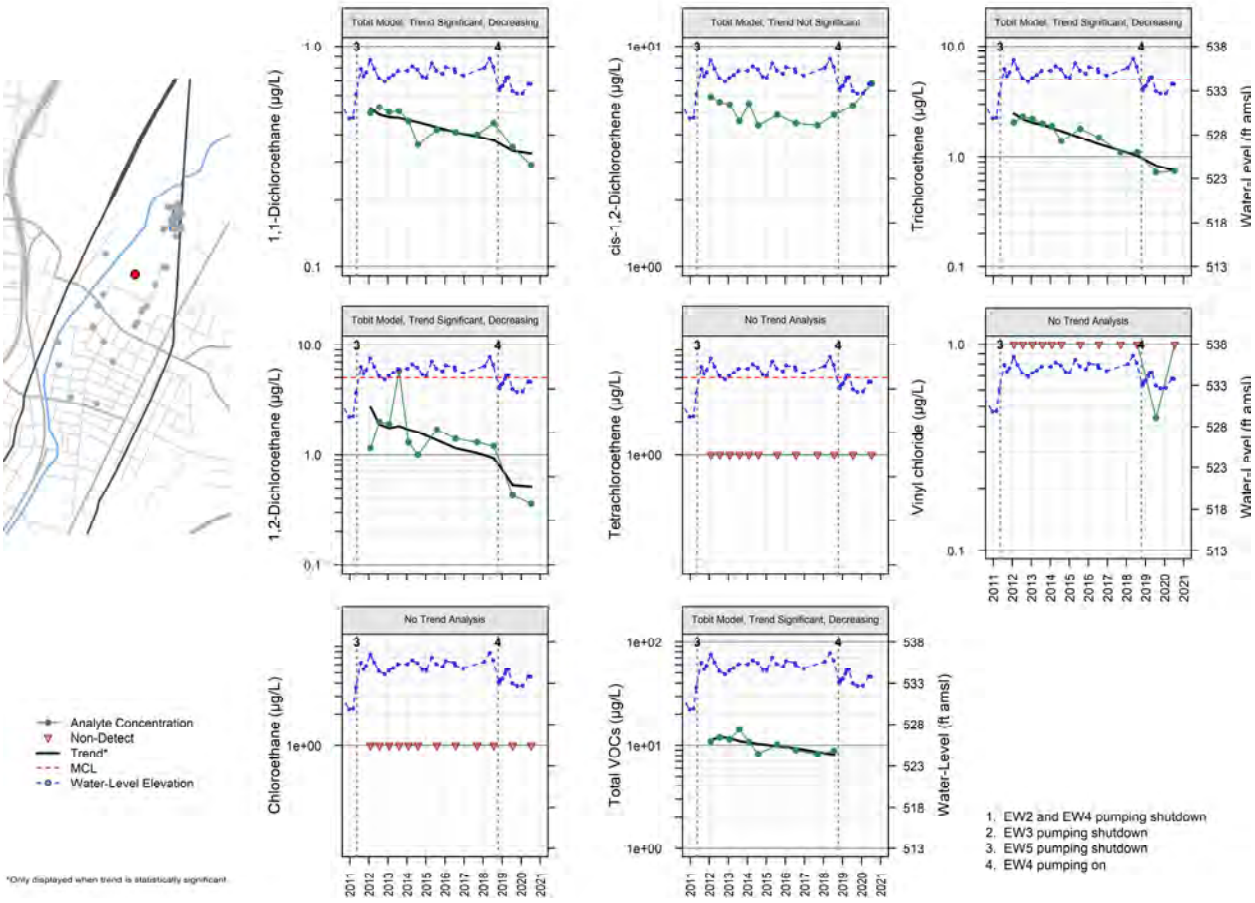
MW91


No Trend Analysis
Tobit Model, Trend Significant, Decreasing
Tobit Model, Trend Significant, Decreasing
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
No Trend Analysis
No Trend Analysis
Tobit Model, Trend Not Significant
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
No Trend Analysis
Tobit Model, Trend Significant, Decreasing
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

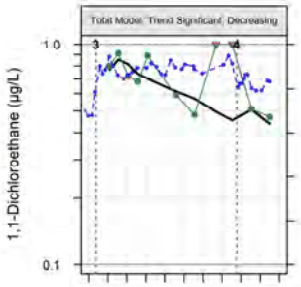
MW90

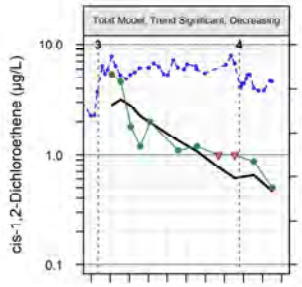

No Trend Analysis
Tobit Model, Trend Significant, Decreasing
Tobit Model, Trend Significant, Decreasing
No Trend Analysis
No Trend Analysis
Tobit Model, Trend Not Significant
No Trend Analysis
Tobit Model, Trend Significant, Decreasing
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
1e+00
1e+01
1e+02
10.0
1.0
0.1
536
531
526
521
516
511
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

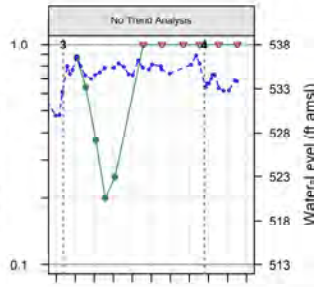
MW89

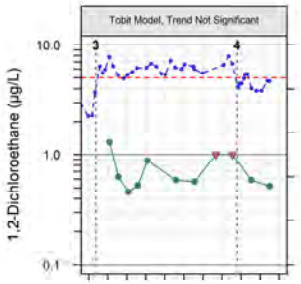

Tobit Model, Trend Significant, Decreasing
1,1-Dichloroethane (µg/L)
Tobit Model, Trend Not Significant
cis-1,2-Dichloroethene (µg/L)
Tobit Model, Trend Significant, Decreasing
Trichloroethene (µg/L)
Water-Level (ft amsl)
Tobit Model, Trend Significant, Decreasing
1,2-Dichloroethane (µg/L)
No Trend Analysis
Tetrachloroethene (µg/L)
No Trend Analysis
Vinyl chloride (µg/L)
No Trend Analysis
Chloroethane (µg/L)
Tobit Model, Trend Significant, Decreasing
Total VOCs (µg/L)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

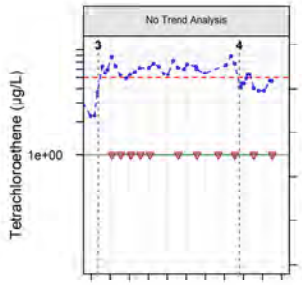
MW88

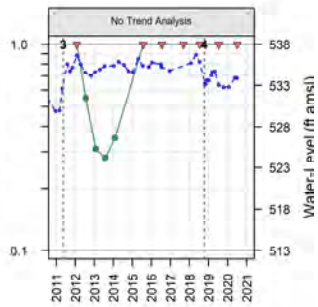


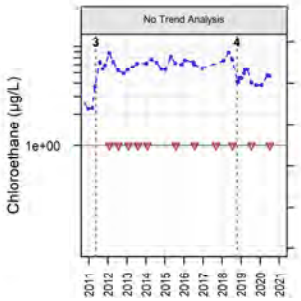


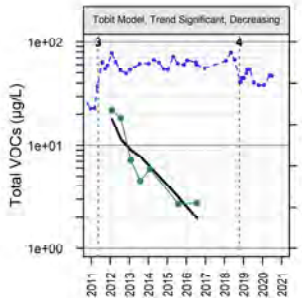










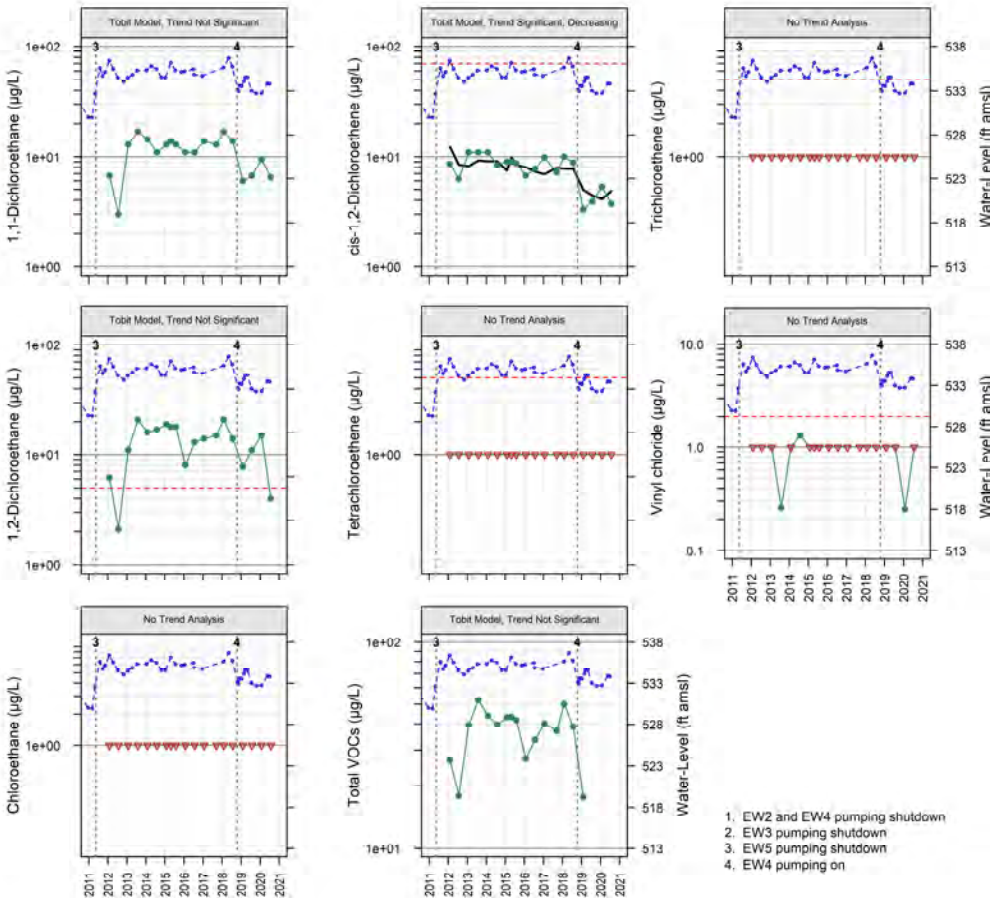


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW87

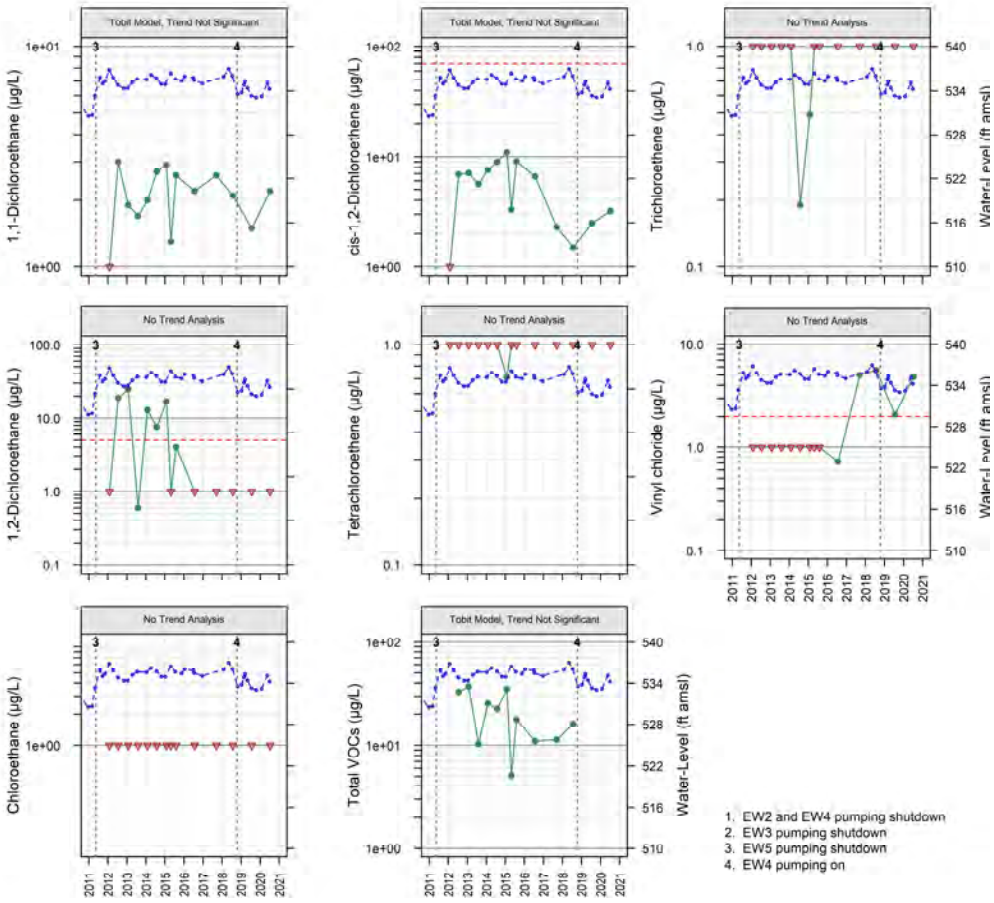


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW86

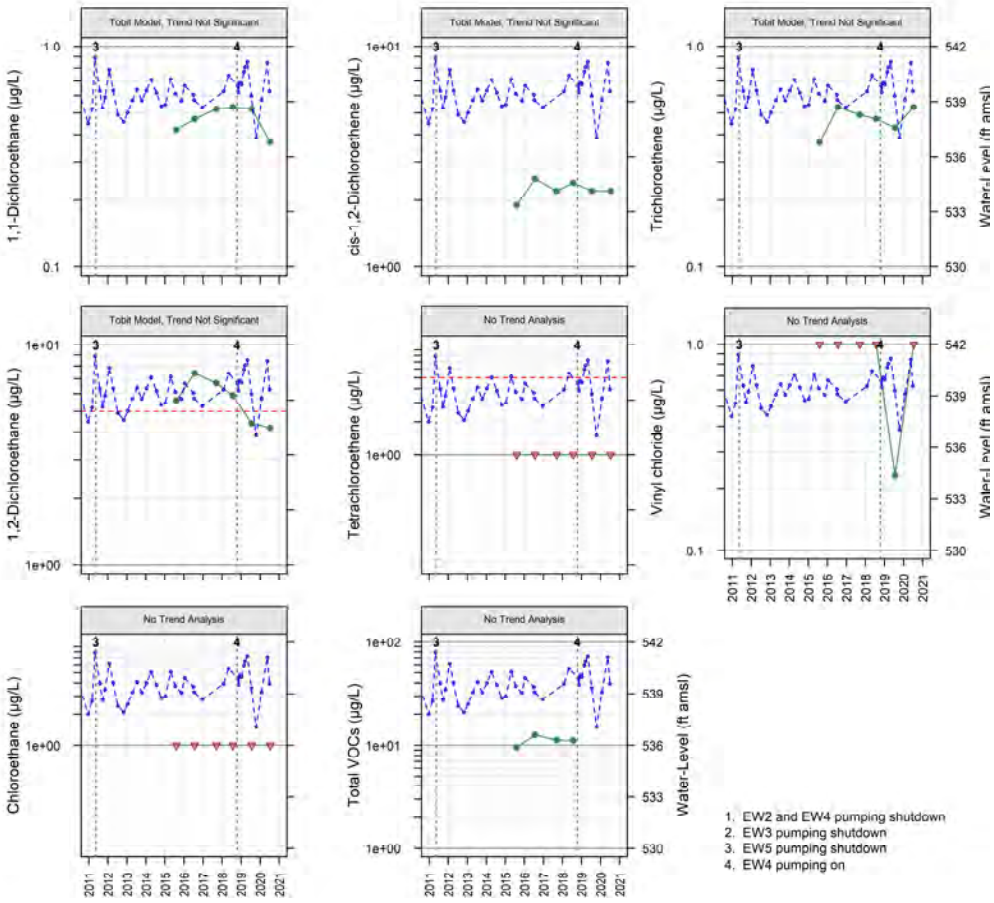


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW85

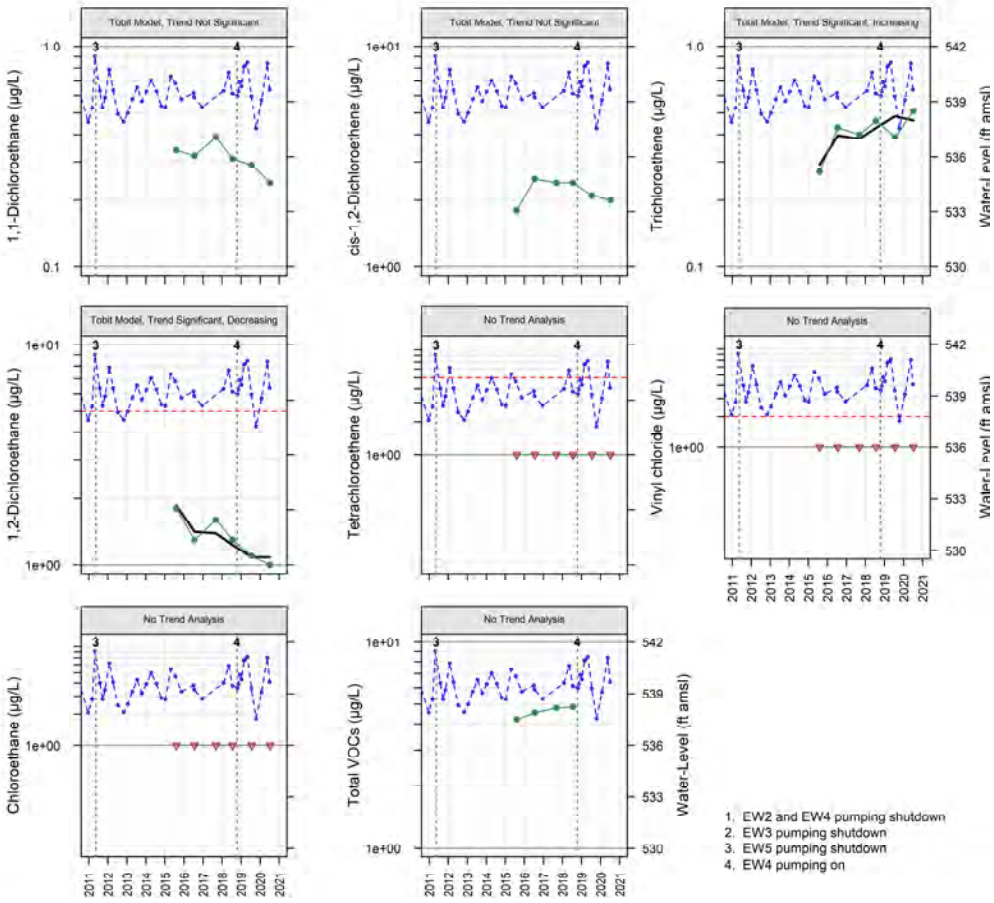


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW84

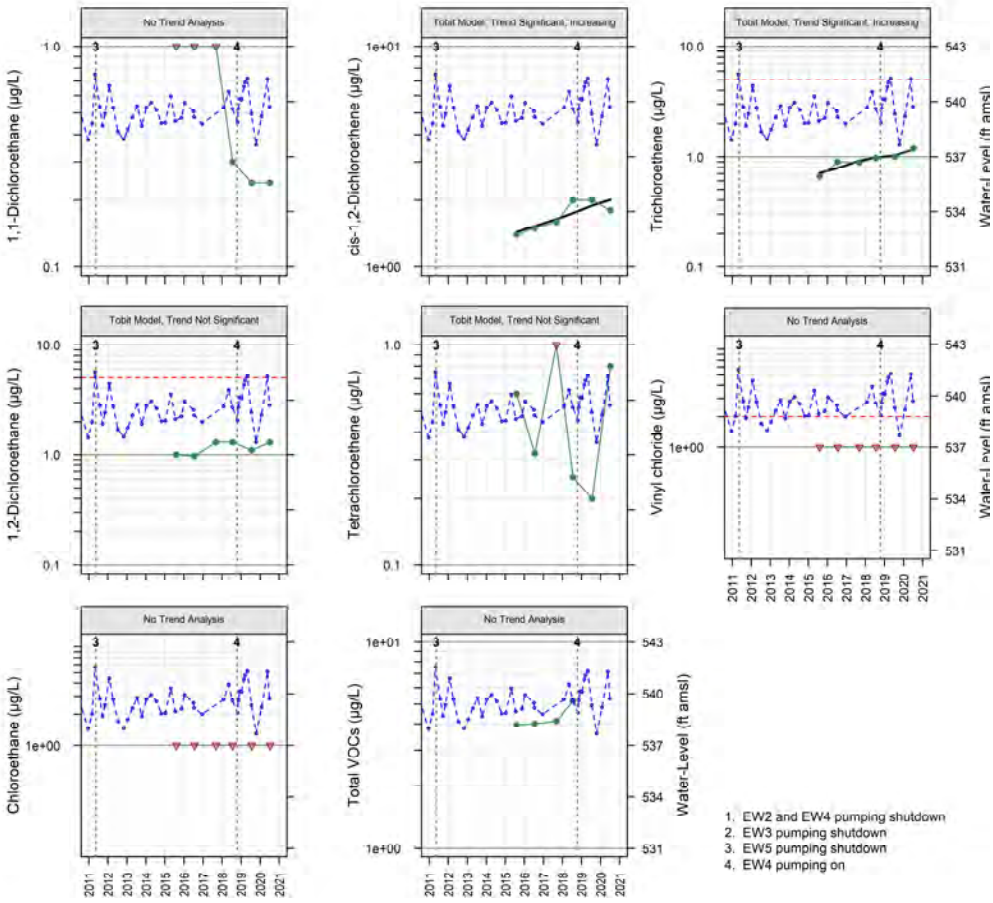


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW83

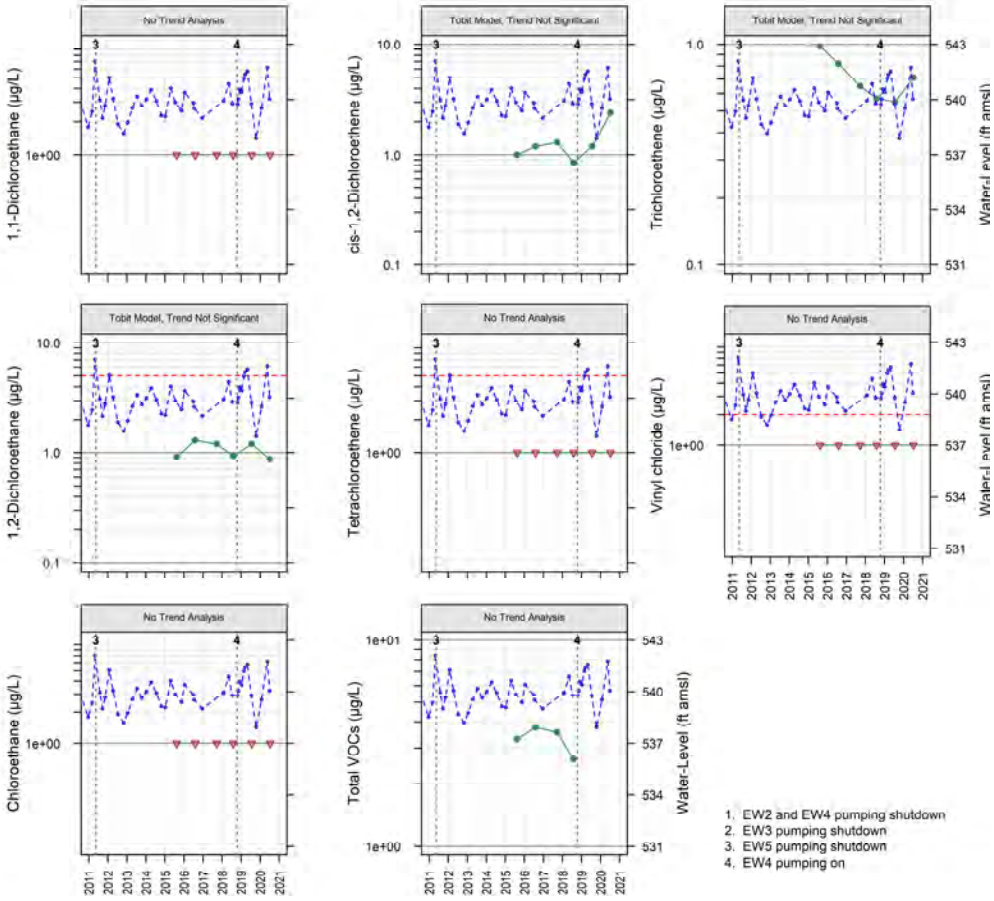


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW82

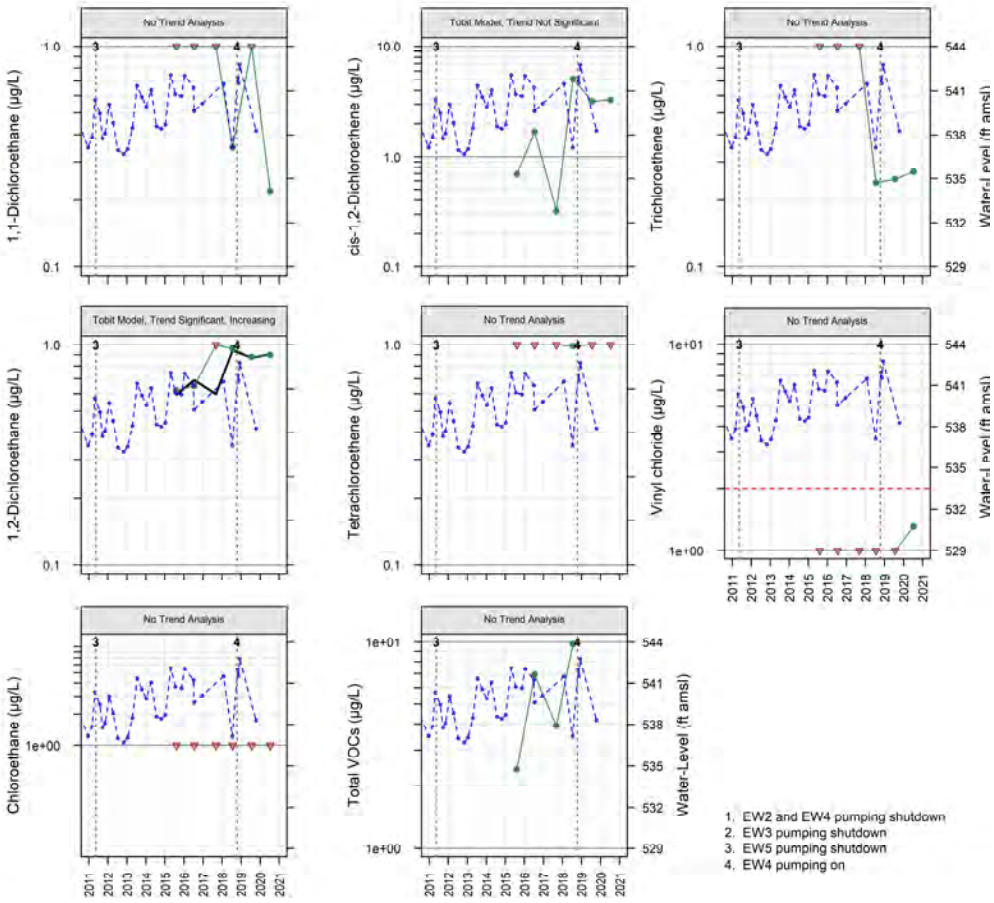


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW81

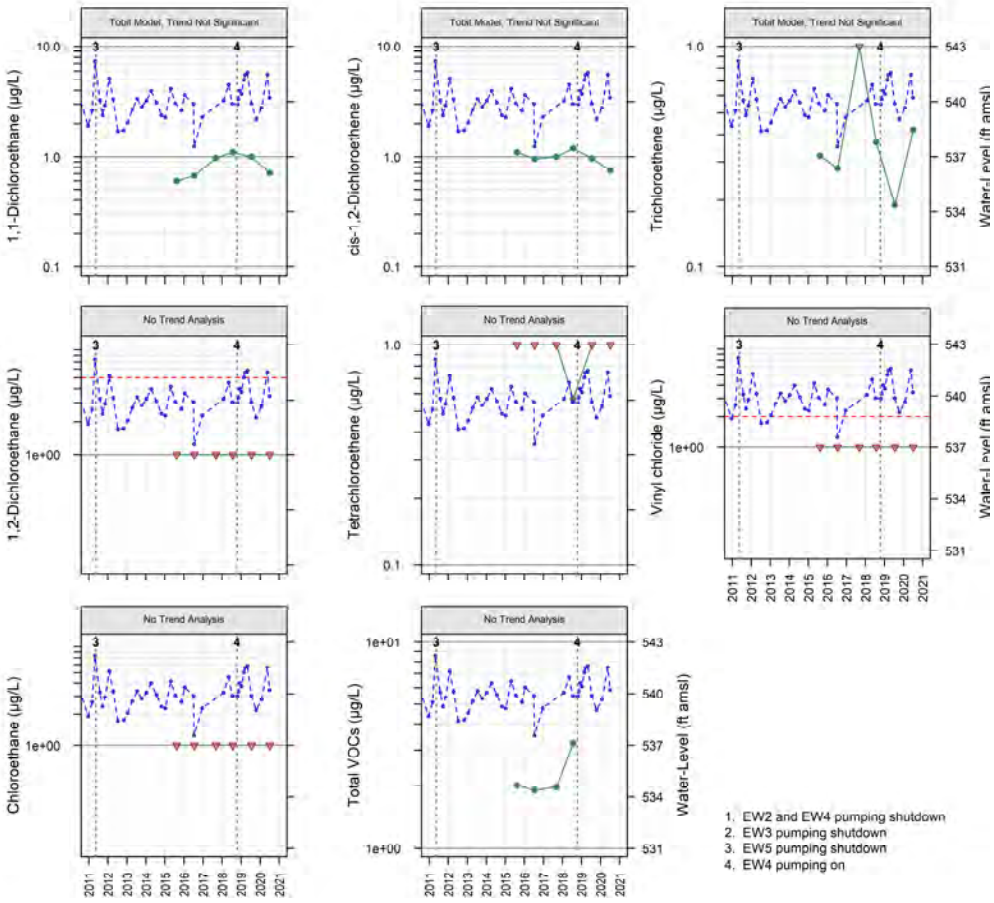


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW80

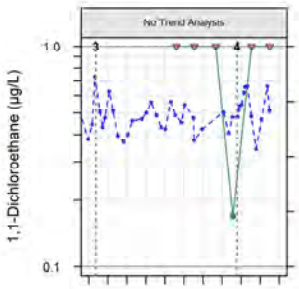


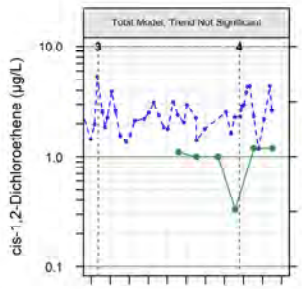
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

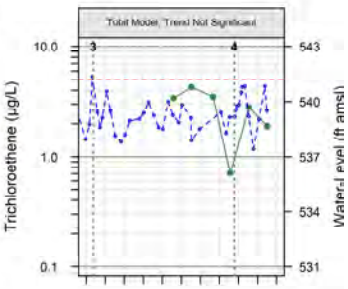
*Only displayed when trend is statistically significant

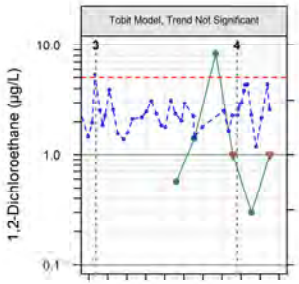
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

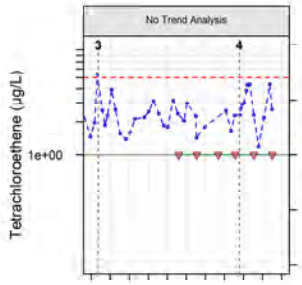
MW79

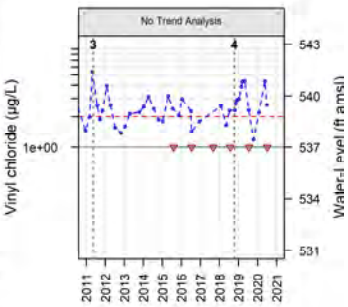


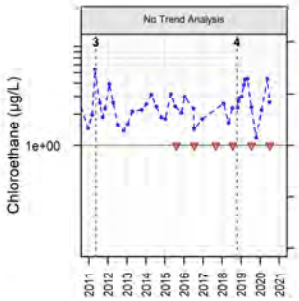


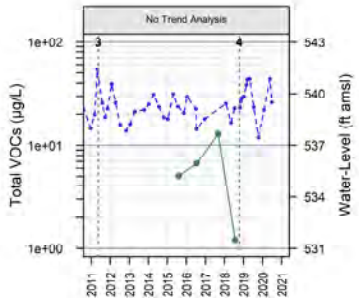


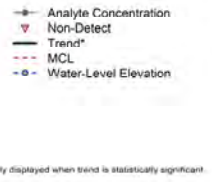








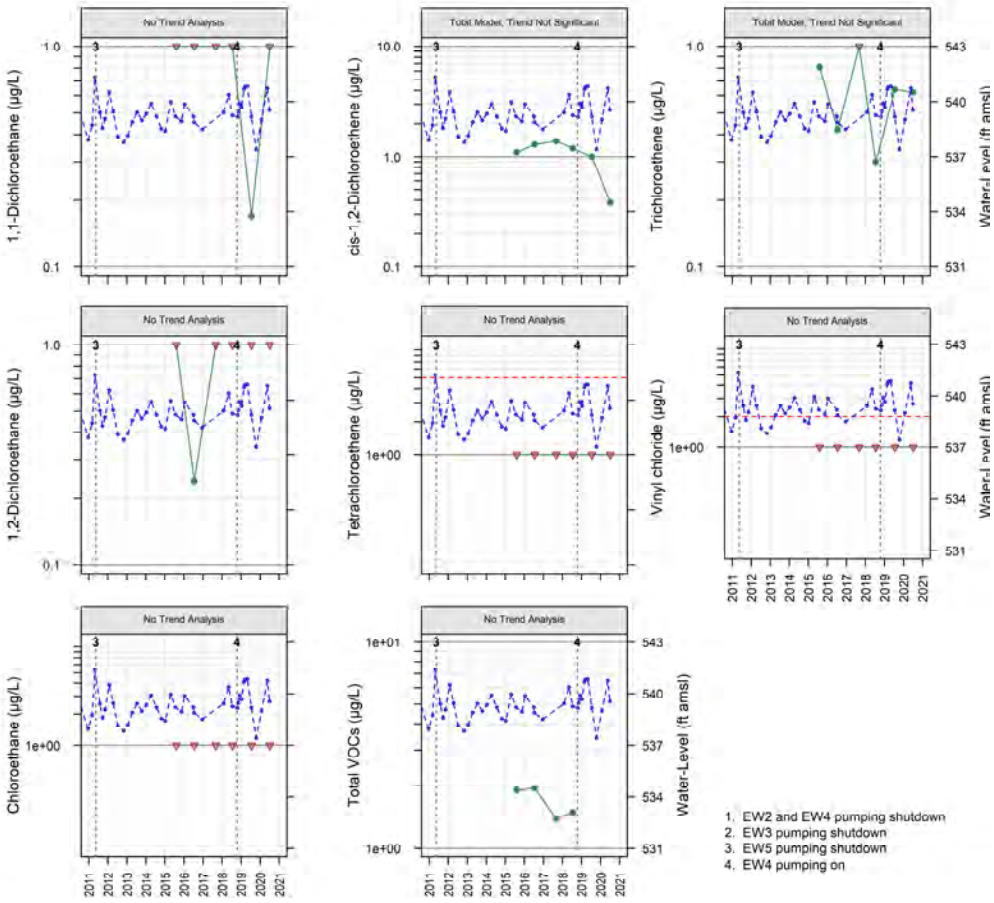




*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW78

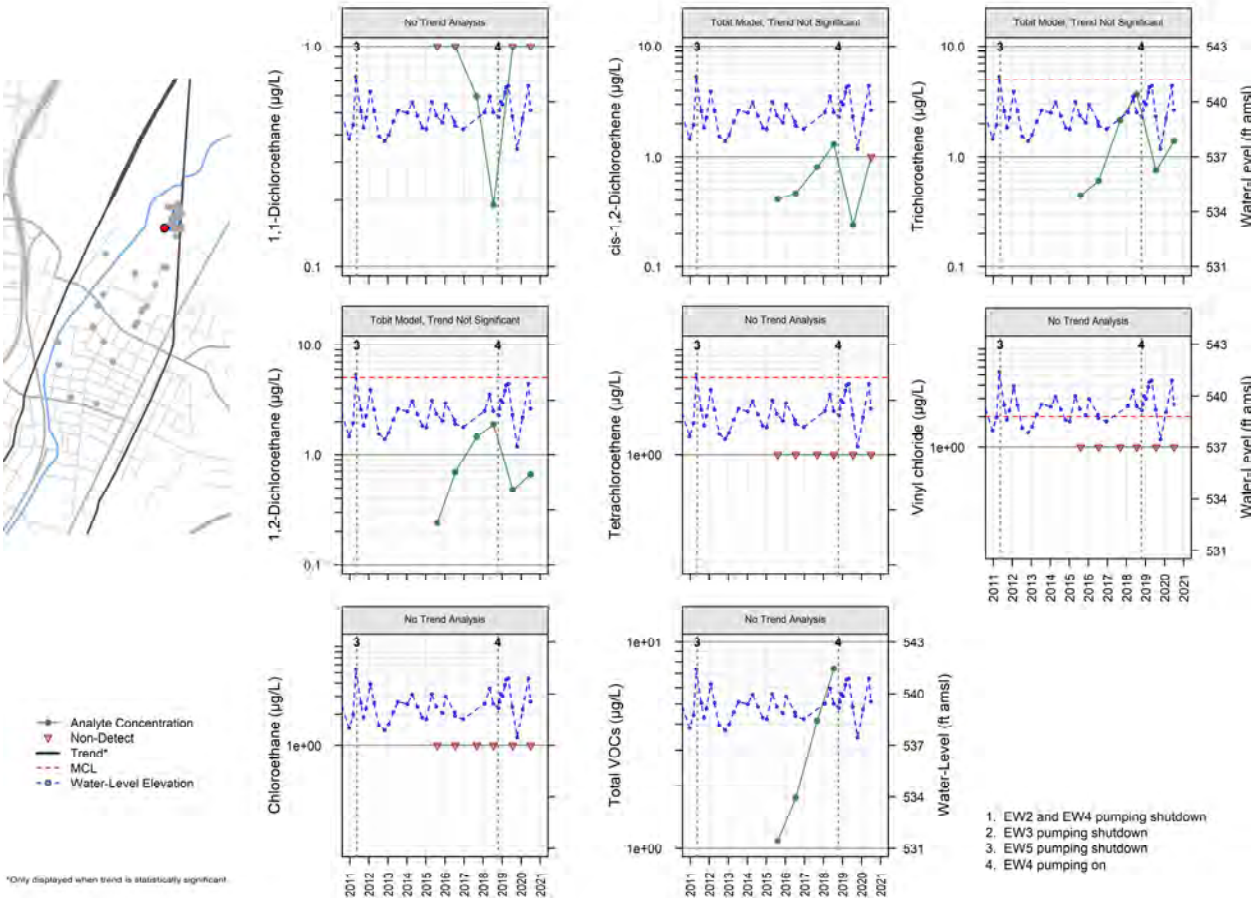


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

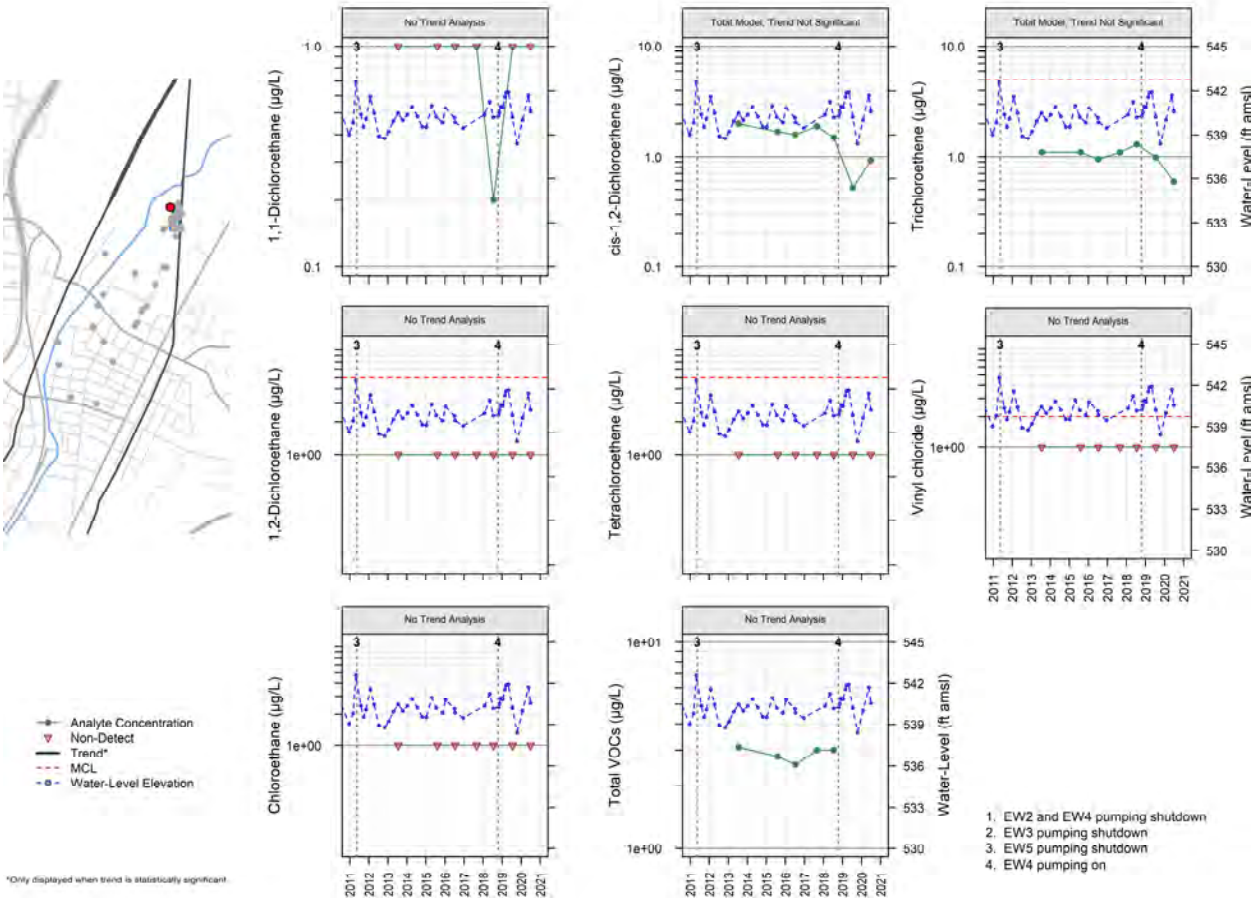
*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

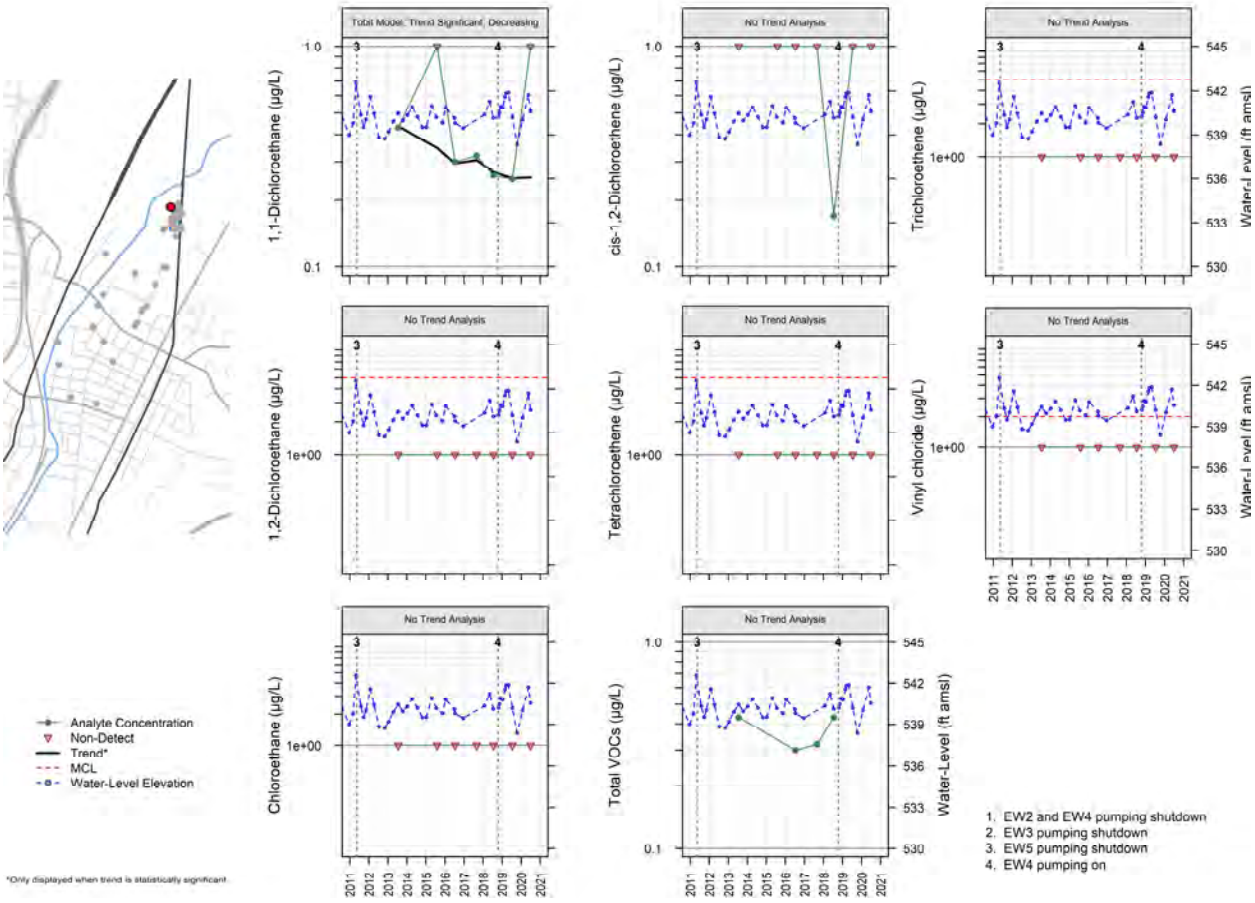
MW77


No Trend Analysis
Tobit Model, Trend Not Significant
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

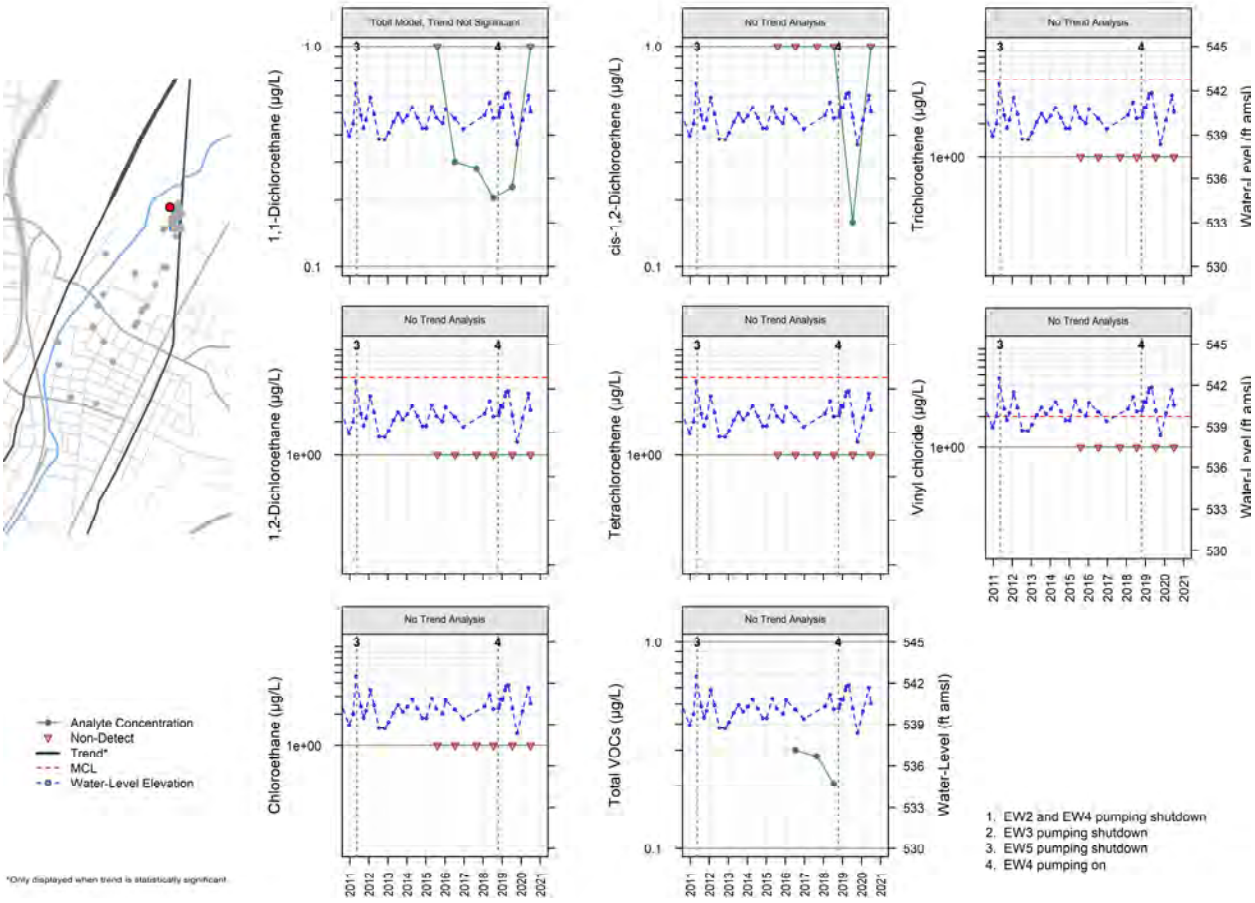
MW76


No Trend Analysis
Tobit Model, Trend Not Significant
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

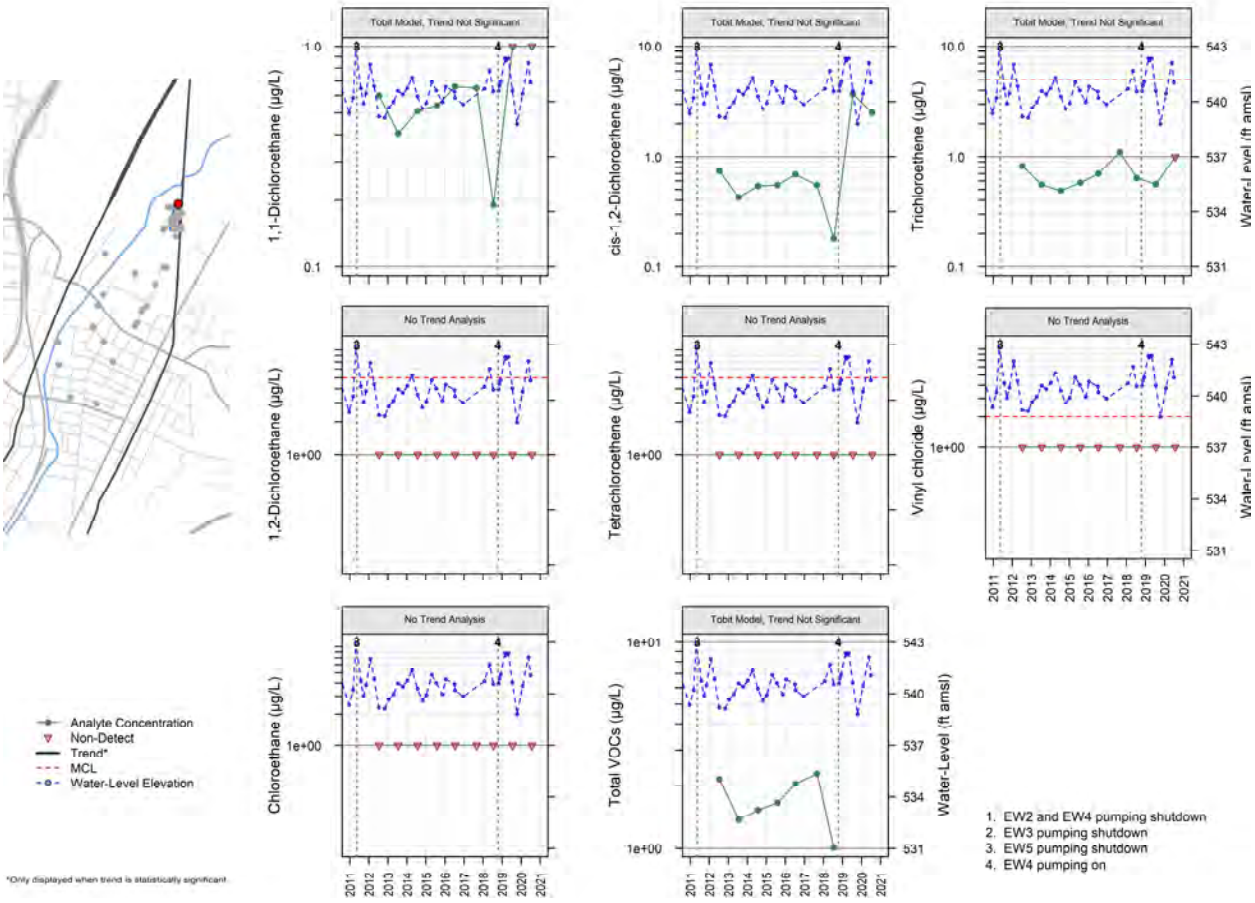
MW75


Total Model: Trend Significant, Decreasing
No Trend Analysis
1,1-Dichloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Trichloroethene (µg/L)
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

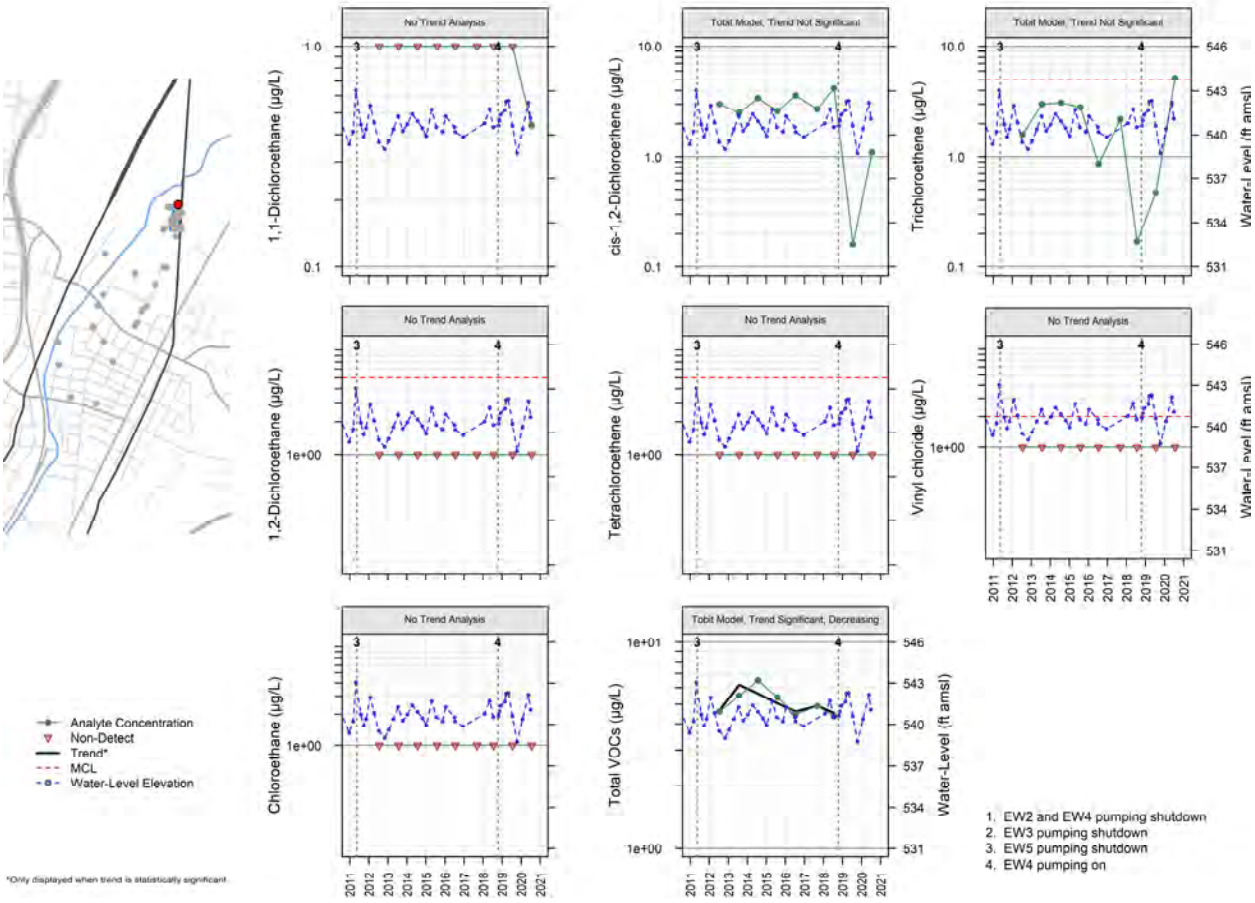
MW74


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1,1-Dichloroethane (µg/L)
1,2-Dichloroethane (µg/L)
Chloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Tetrachloroethene (µg/L)
Total VOCs (µg/L)
Trichloroethene (µg/L)
Vinyl chloride (µg/L)
Water-Level (ft amsl)
No Trend Analysis
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW73


Tobit Model, Trend Not Significant
No Trend Analysis
1,1-Dichloroethane (µg/L)
1,2-Dichloroethane (µg/L)
Chloroethane (µg/L)
cis-1,2-Dichloroethene (µg/L)
Tetrachloroethene (µg/L)
Total VOCs (µg/L)
Trichloroethene (µg/L)
Vinyl chloride (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW72

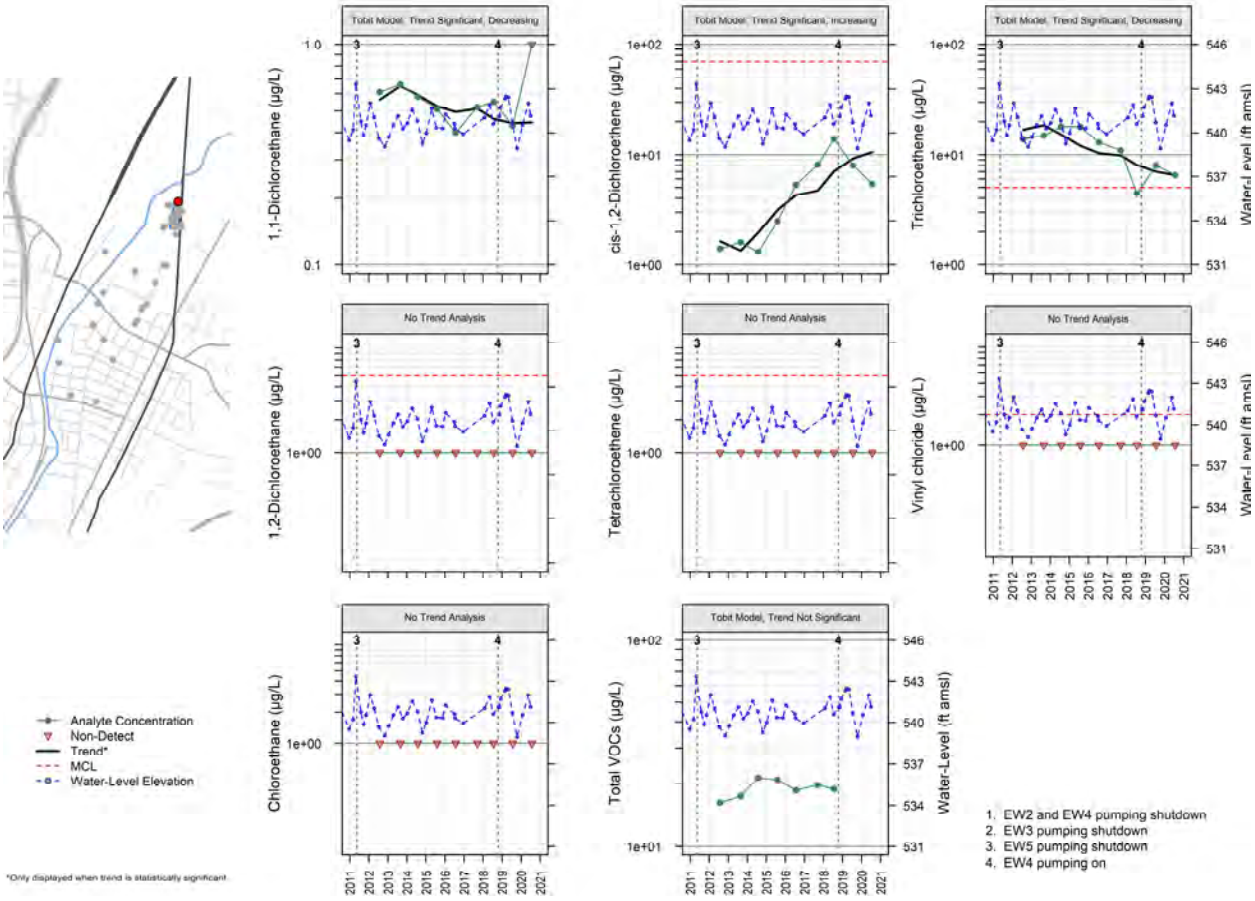


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

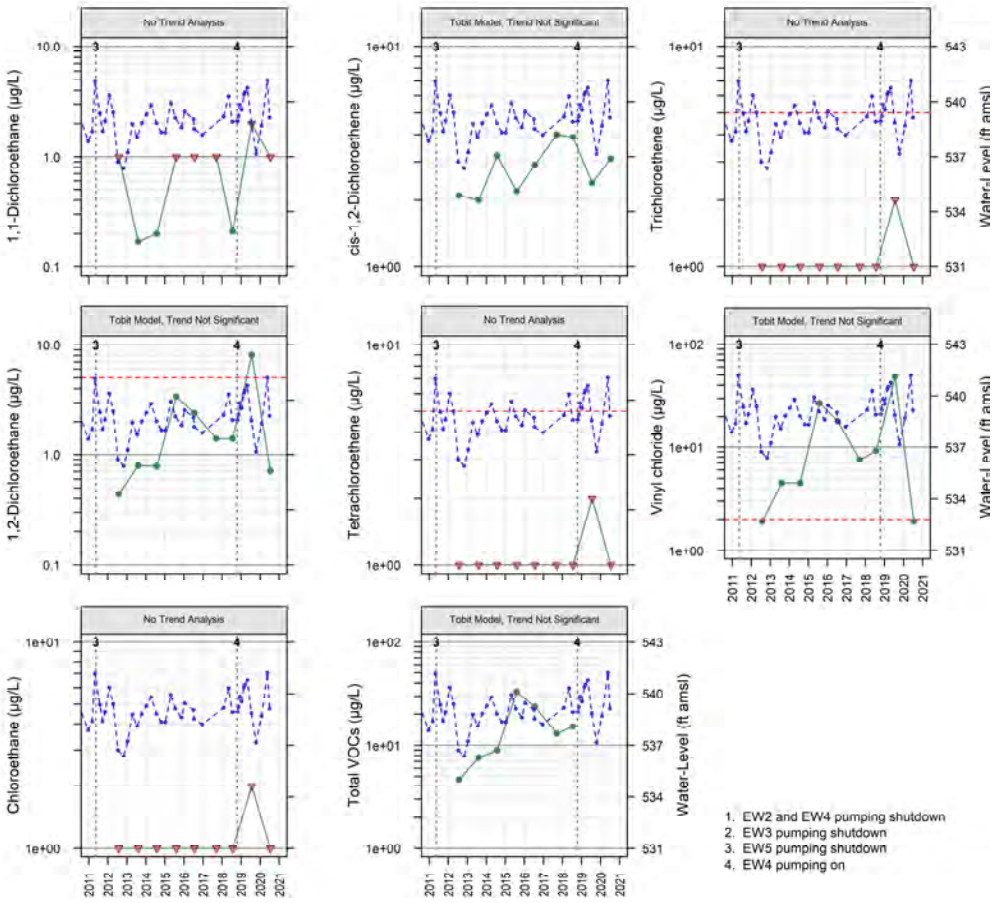
*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW71


Tobit Model, Trend Significant, Decreasing
1,1-Dichloroethane (µg/L)
Tobit Model, Trend Significant, Increasing
cis-1,2-Dichloroethene (µg/L)
Tobit Model, Trend Significant, Decreasing
Trichloroethene (µg/L)
Water-Level Level (ft amsl)
No Trend Analysis
1,2-Dichloroethane (µg/L)
Tetrachloroethene (µg/L)
Vinyl chloride (µg/L)
Chloroethane (µg/L)
Tobit Model, Trend Not Significant
Total VOCs (µg/L)
Water-Level (ft amsl)
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation
*Only displayed when trend is statistically significant
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW70

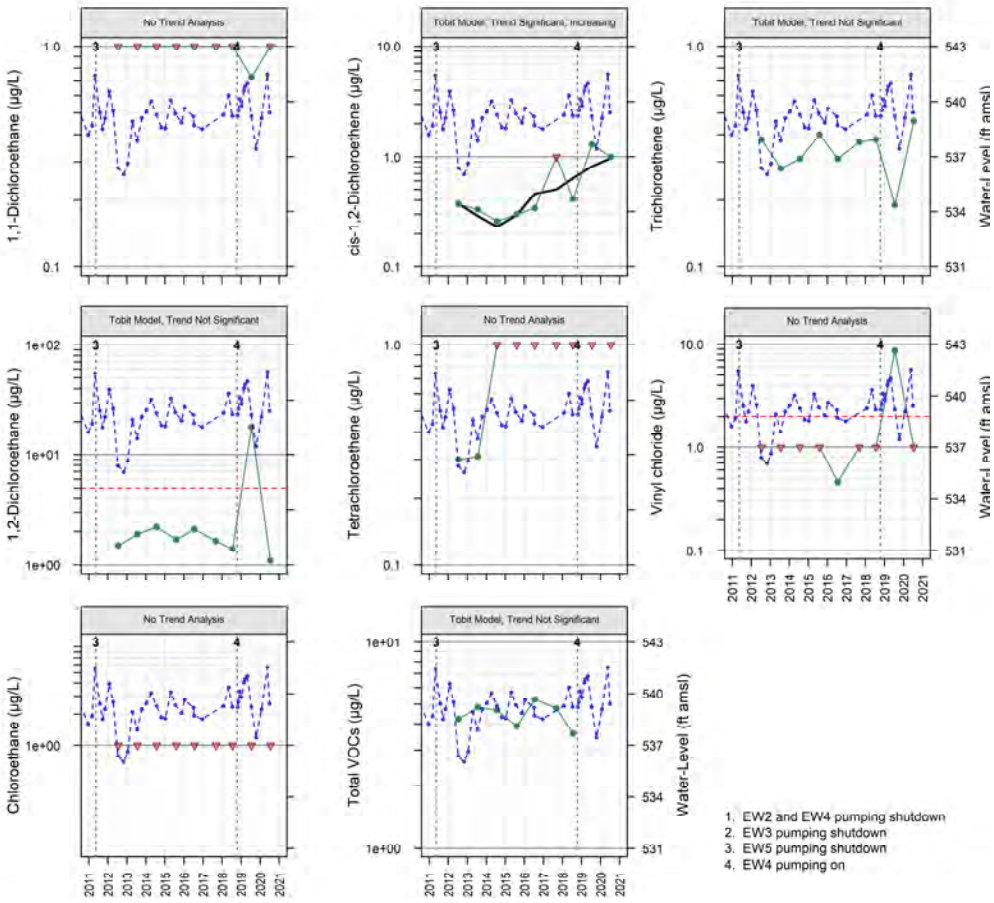


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW69

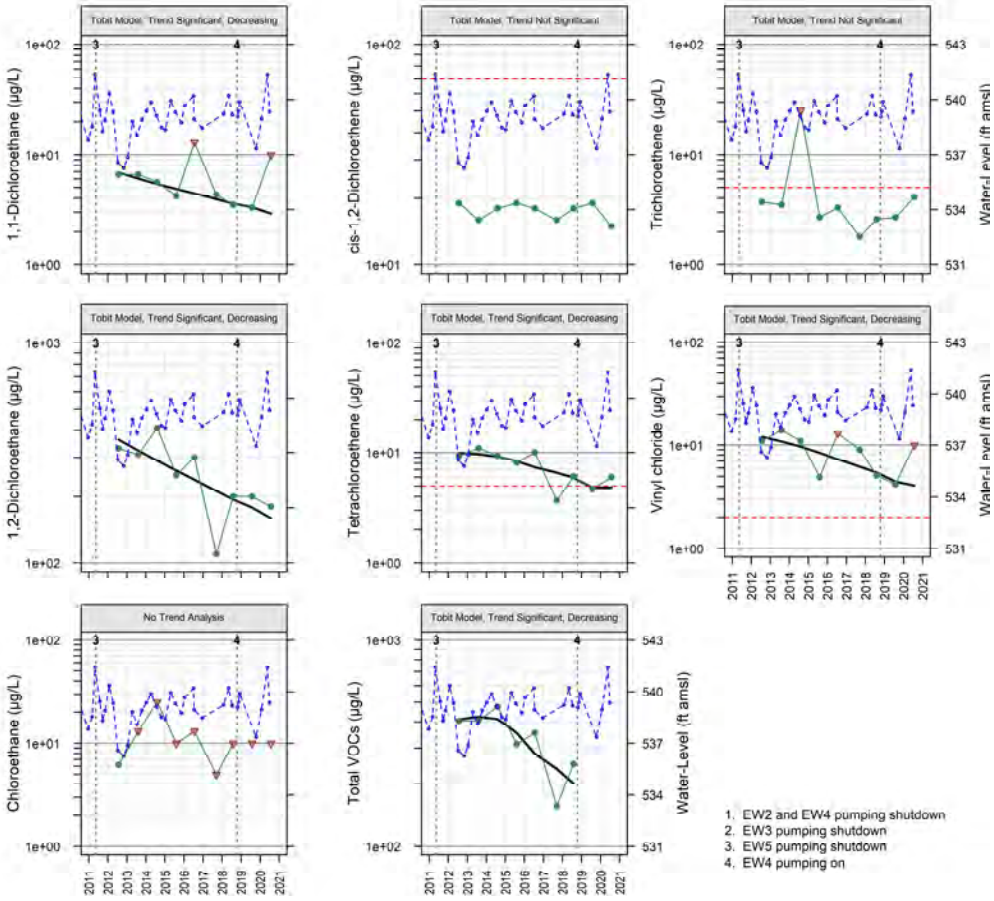


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW68

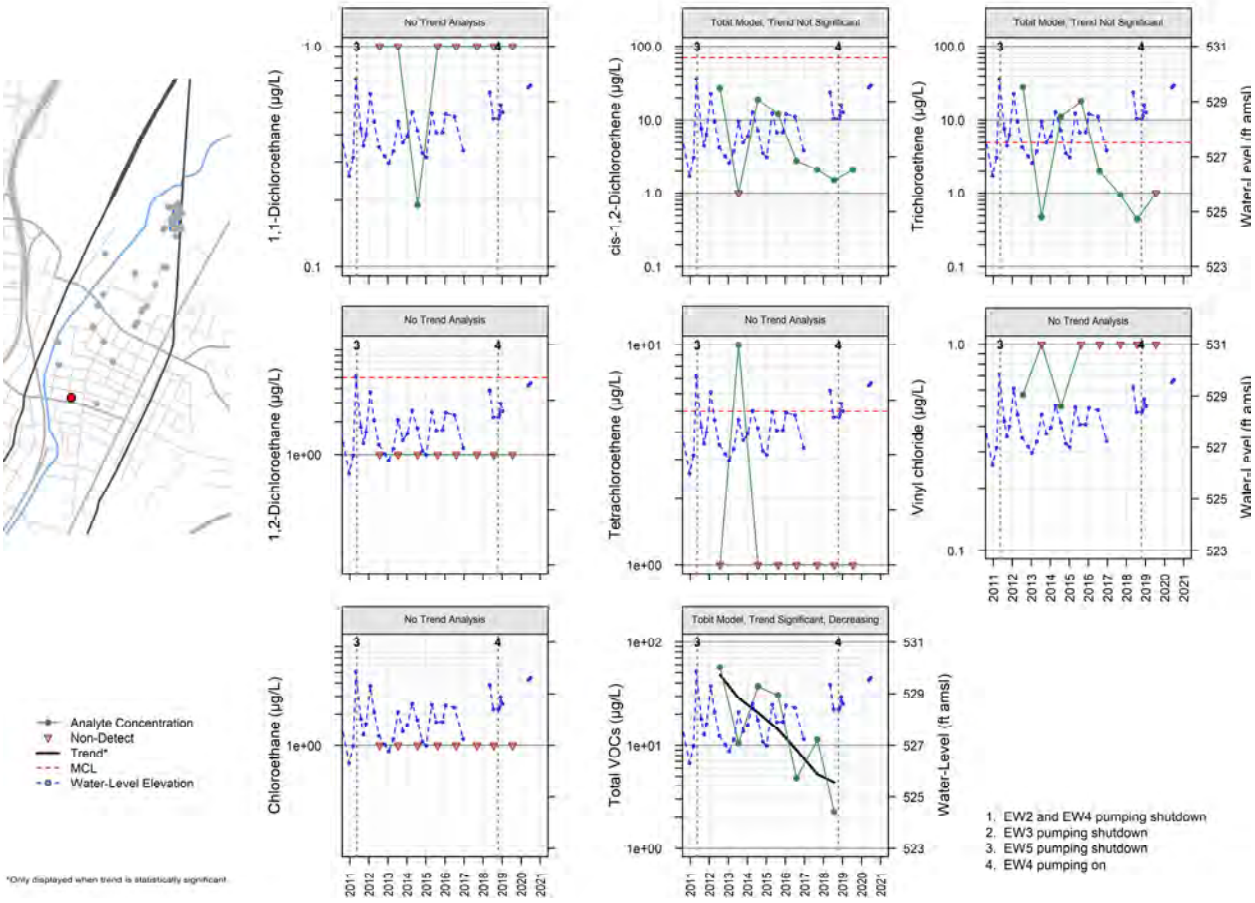


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW102

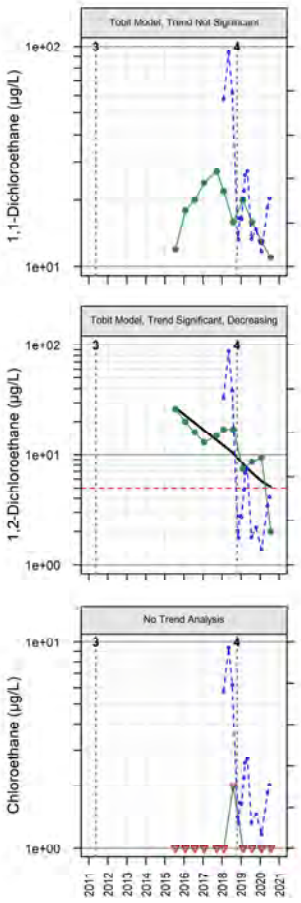


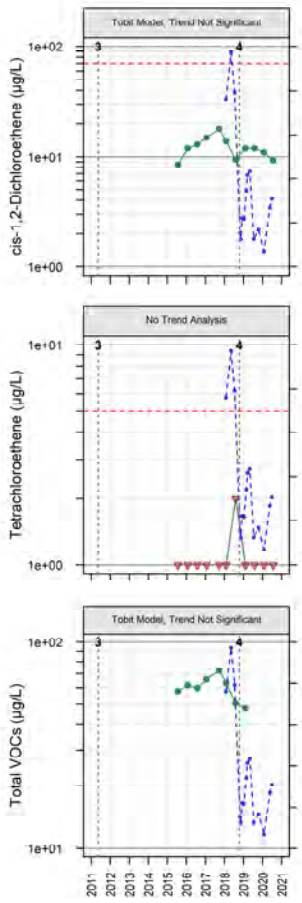
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

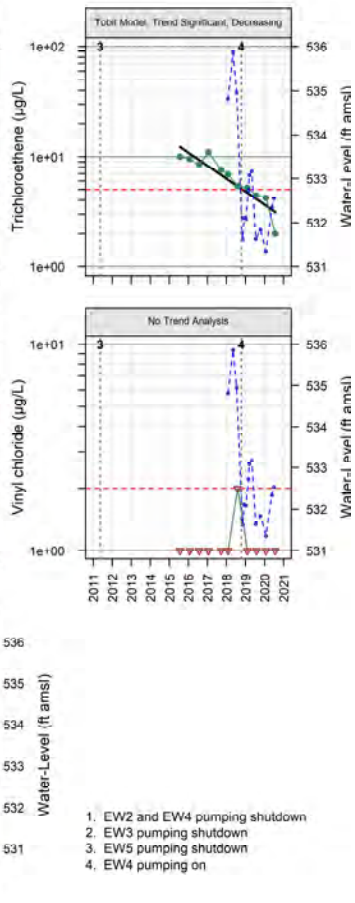
*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

PZ7D



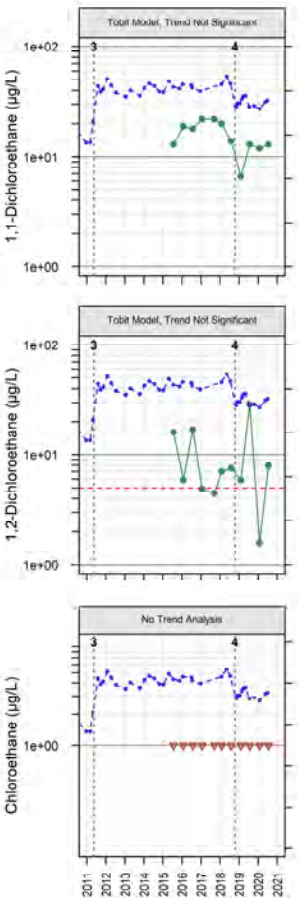


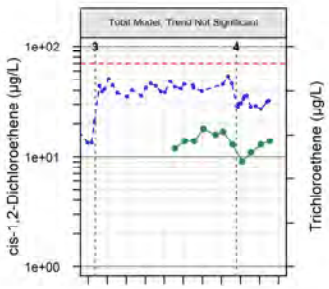


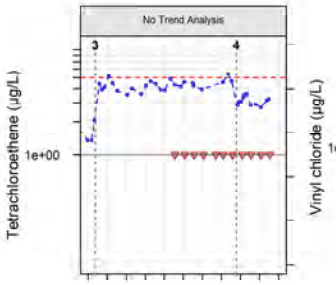
*Only displayed when trend is statistically significant

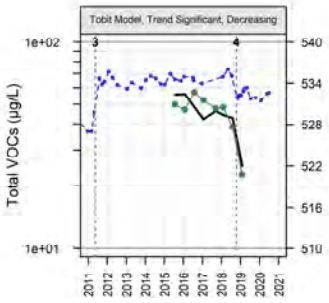
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

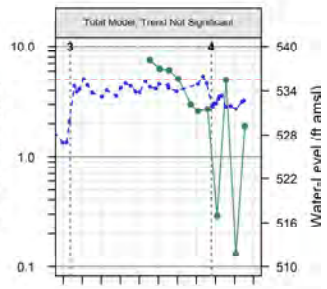
PZ6

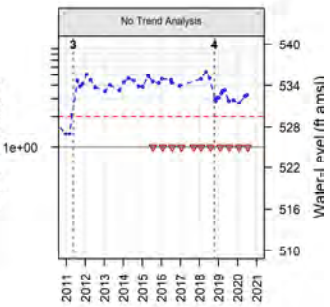










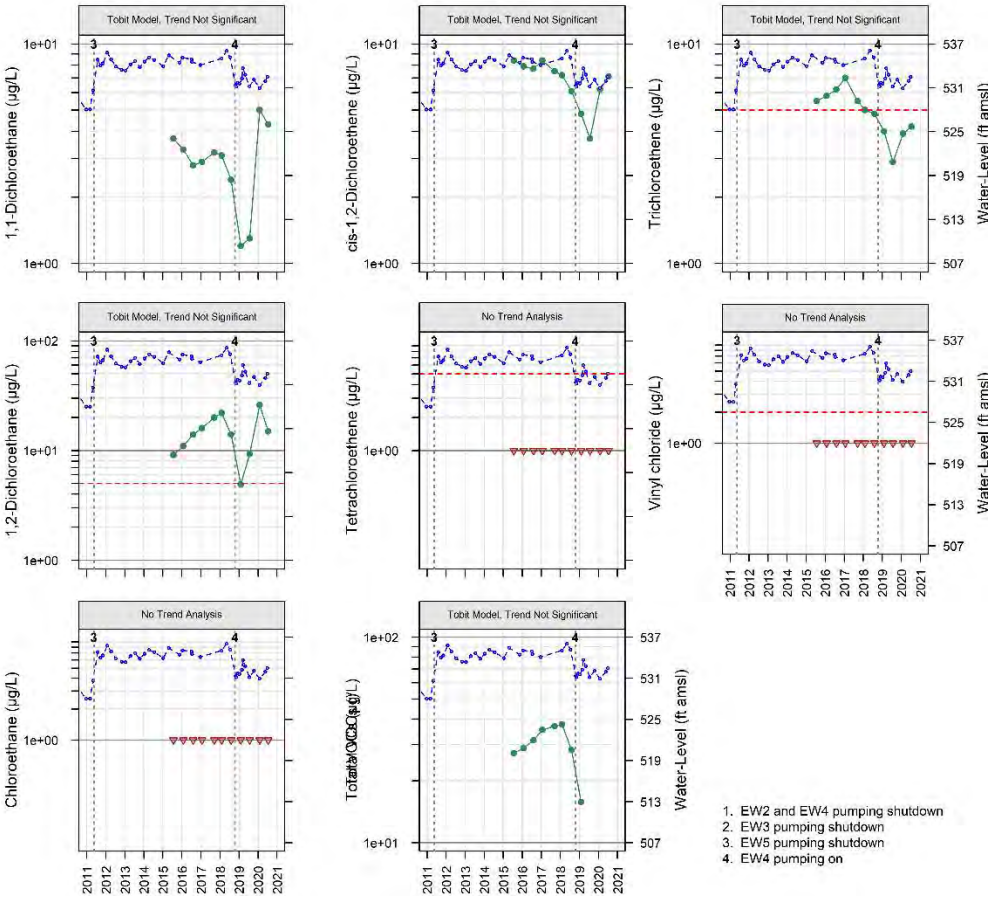


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

PZ5

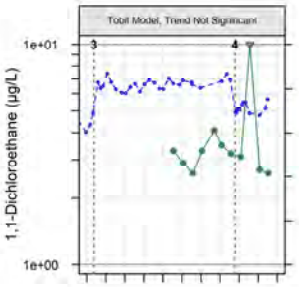


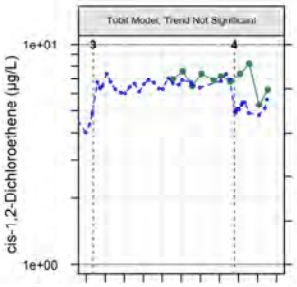
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

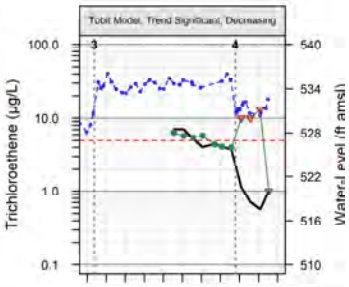
*Only displayed when trend is statistically significant

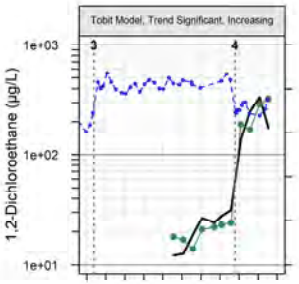
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

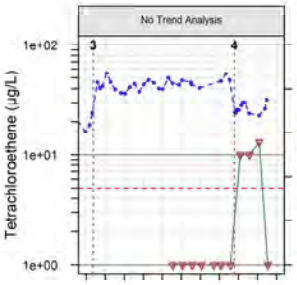
PZ4

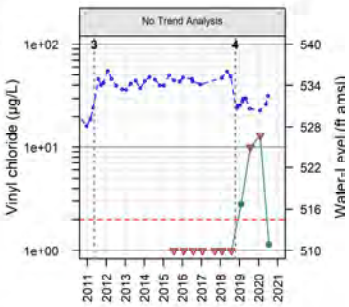


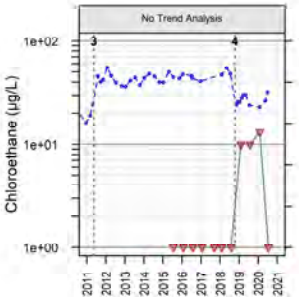


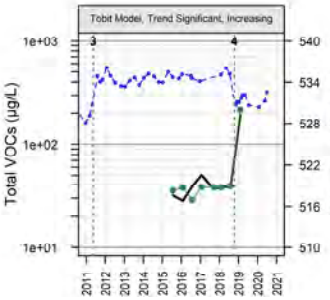










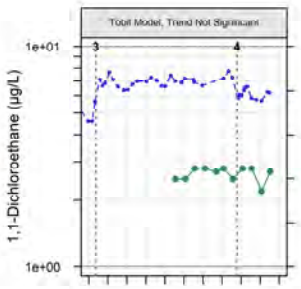


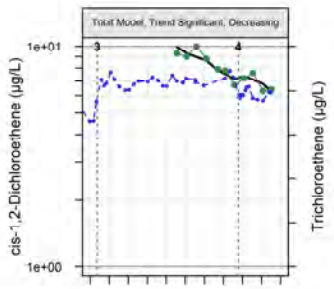
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

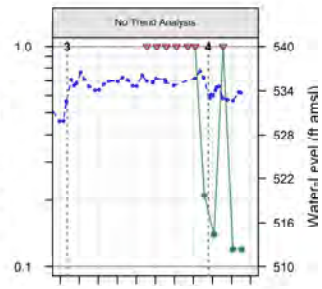
*Only displayed when trend is statistically significant

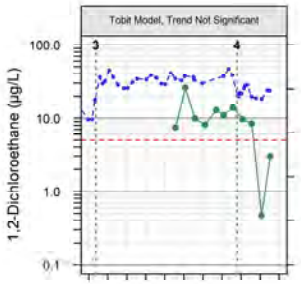
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

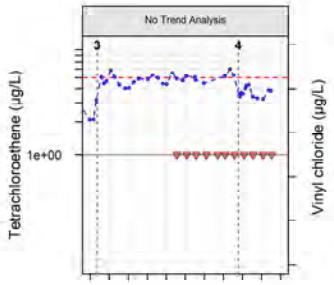
PZ3

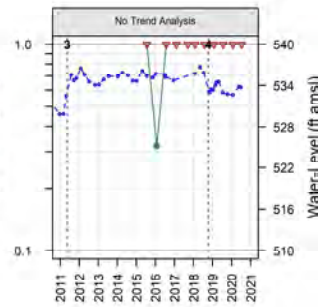


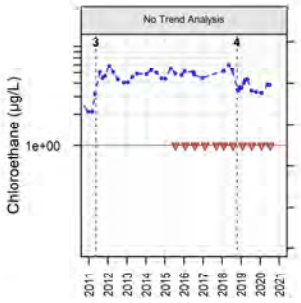


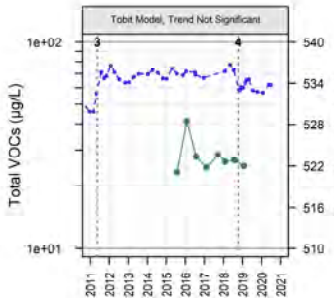


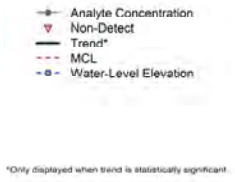








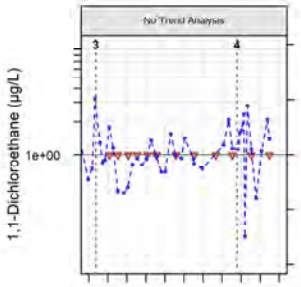


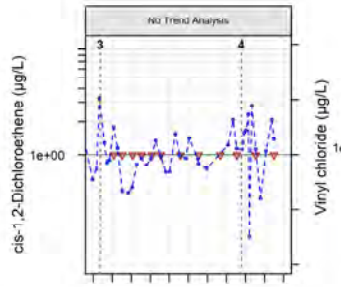


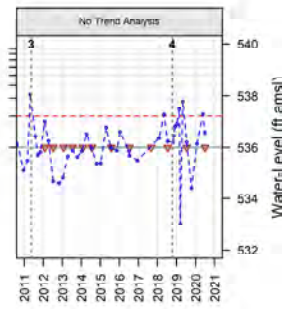
*Only displayed when trend is statistically significant

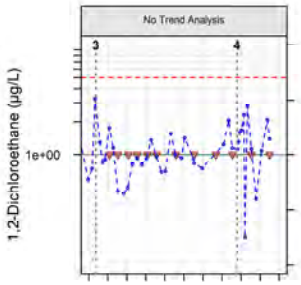
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

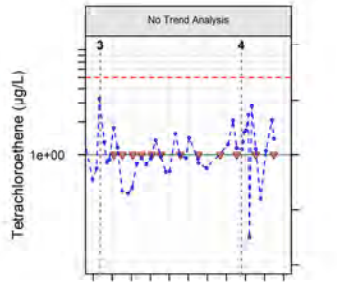
MW106



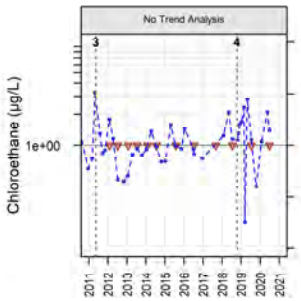


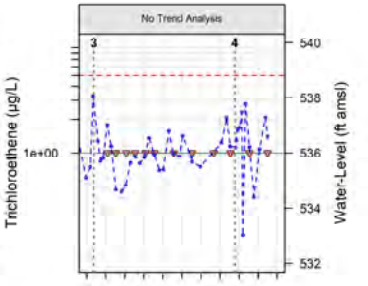






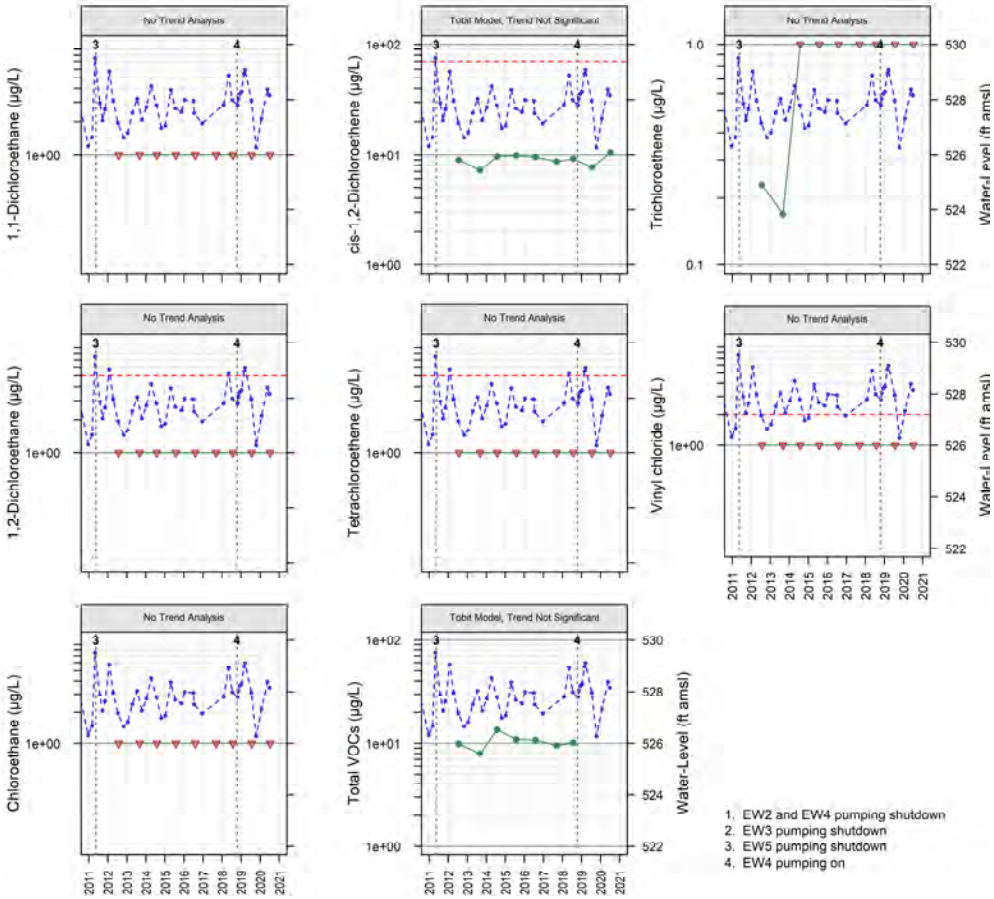
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on





*Only displayed when trend is statistically significant

MW105

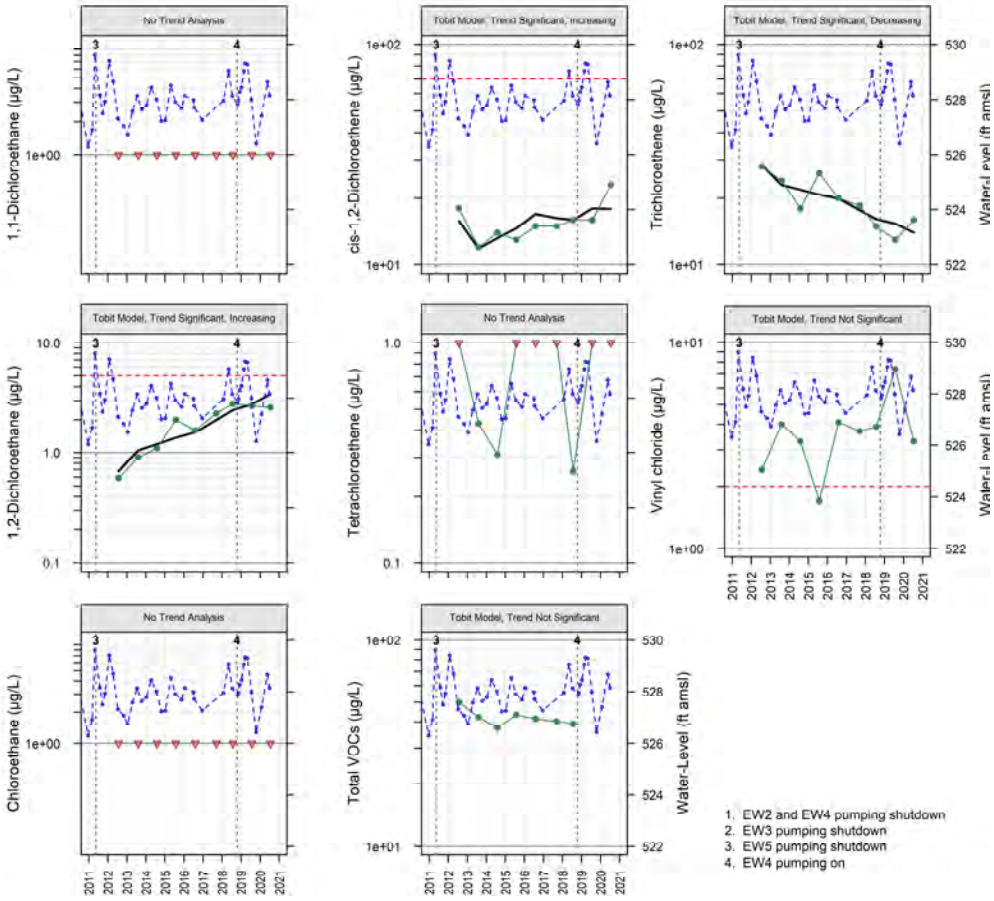


Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

MW104

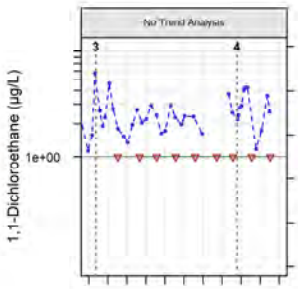


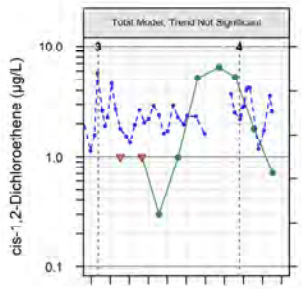
Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

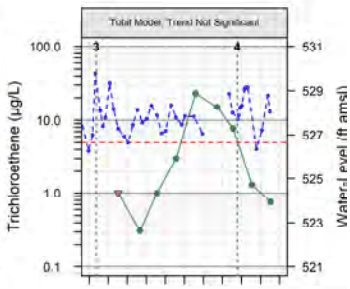
*Only displayed when trend is statistically significant

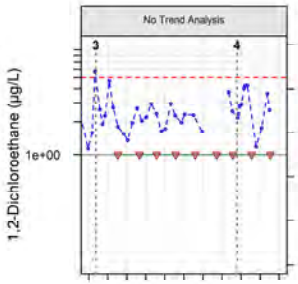
1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

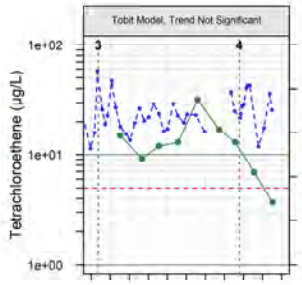
MW103

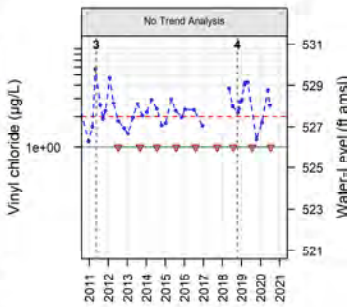


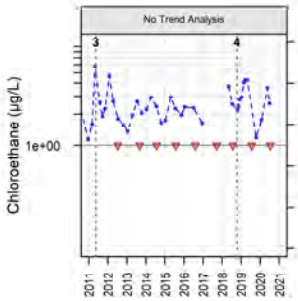


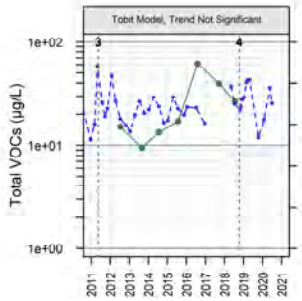


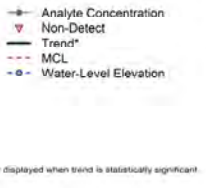








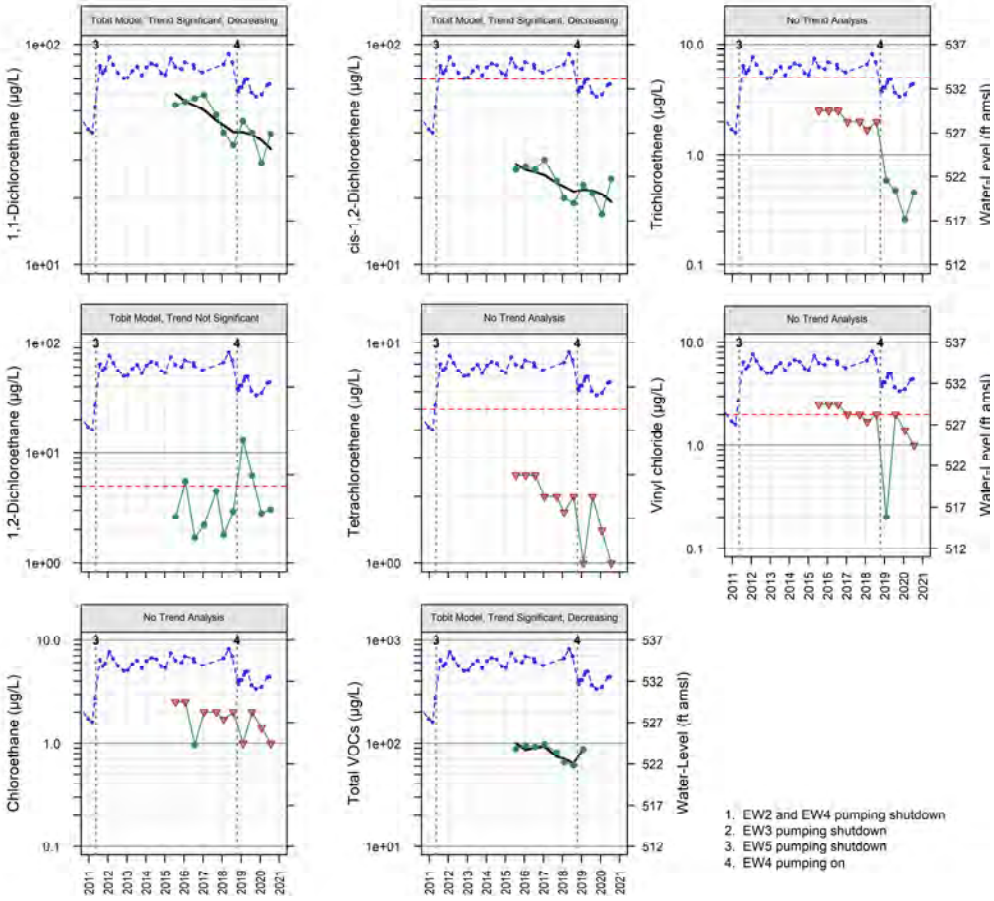




*Only displayed when trend is statistically significant

1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

PZ7S



Analyte Concentration
Non-Detect
Trend*
MCL
Water-Level Elevation

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1. EW2 and EW4 pumping shutdown
2. EW3 pumping shutdown
3. EW5 pumping shutdown
4. EW4 pumping on

Well ID	EPA 1,4-D ug/l	PRP 1,4D ug/l	PRP PFOA ng/l	PRP PFOS ng/l
EW-1	0.572	0.88	21	25
EW-4	1.47	1.9	12	3.7
MW-100	1.23	1.7	<1.8	2.5
MW-101	1.5	1.9	<1.8	<1.8
MW-68	2.97	3.9	4.7	16
MW-71		0.34	1.4	0.87
MW-72		0.19	20	12
MW-73	0.369	0.51	32	<1.8
MW-87	0.961	1.2	13	<1.8
MW-95	1.2	1.4	20	2.9
MW-96		<0.19	1.4	2.5
MW-97	<0.2	<0.2	11	5.3
PZ-7D	0.943	1.2	<1.8	<1.8
PZ-7S	1.46	2	6.7J	28
GW-50		2.1	9	8.6
GW-63			28	63
GW-108		0.54	8.9	11
P-6		2.7	<1.7	<1.7

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
EW1	Lower Aquifer	5/16/2016	W-051616-AS-1162-EW	7.7 J	<25 U	<25 U	<25 U	7.4 J	670	<250 U	18 J	<25 U	<25 U	33	<25 U	16 J	19 J	<25 U	9.8 J	<25 U	<25 U	<25 U		14 J	<25 U
EW1	Lower Aquifer	5/15/2017	W-051517-RR-1250-E	<25 U	<25 U	<25 U	<25 U	6.7 J	590	<250 U	16 J	<25 U	10 J	31	<25 U	14 J	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U		11 J	<25 U
EW1	Lower Aquifer	5/14/2018	W-051418-AS-1324-EW	<6.3 U	7.6	4.5 J	3.1 J	8.5	6.4	680	<63 U	11	4.1 J	9.7	36	<6.3 U	13	24	10	6.2 J	2.7 J	<6.3 U	3.4 J	12	<6.3 U
EW1	Lower Aquifer	5/14/2018	W-051418-AS-1325-EW	1.5 J	6.6	4.3 J	2.5 J	8.5	6.2	650	<50 U	11	4.3 J	8.2	35	<5 U	13	26	8.3	4.6 J	2.7 J	<5 U	3.3 J	11	3.4 J
EW1	Lower Aquifer	5/6/2019	W-050619-AS-1400-EW	0.7 J	1.3	2.1	0.4 J	0.8 J	2	99 J	<10 U	3.3	1.4	1.1	8	<1 U	4.9	2.2	<5 U	3.4	0.4 J	0.6 J	1.5	3.4	0.42 J
EW1	Lower Aquifer	4/13/2020	W-041320-JC-1461	<1 U	0.6 J	0.6 J	<1 U	0.7 J	0.7 J	22	<10 U	<1 U	0.3 J	<1 U	2.6	<1 U	2.7	0.1 J	<5 U	0.5 J	<1 U	0.3 J	0.7 J	<1 U	<1 U
EW4	Lower Aquifer	5/6/2019	W-050619-AS-1401-EW	<2 U	1.3 J	3.7	<2 U	<2 U	<2 U	30	<20 U	<2 U	<2 U	<2 U	7.3	<2 U	4	<2 U	<10 U	<2 U	<2 U	0.8 J	0.7 J	<2 U	<2 U
EW4	Lower Aquifer	4/13/2020	W-041320-JC-1460	<1 U	1.2	4.4	<1 U	<1 U	<1 U	0.6 J	<10 U	<1 U	<1 U	<1 U	10	1.2	4.8	<1 U	33	<1 U	<1 U	0.8 J	0.7 J	<1 U	<1 U
MW100	Lower Aquifer	7/22/2016	W-072216-AS-1197-MW	<1 U	13	<1 U	<1 U	<1 U	1.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.2	<1 U	<1 U	<1 U	<1 U	0.3 J	<1 U	0.7 J	<1 U
MW100	Lower Aquifer	9/11/2017	W-091117-AS-1278-MW	<1 U	25	<1 U	<1 U	<1 U	3.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	15	<1 U	<1 U	<1 U	<1 U	0.8	<1 U	0.9	<1 U
MW100	Lower Aquifer	1/30/2018	W-013018-ST-1313-MW	<1.4 U	<1.4 U	24	<1.4 U	<1.4 U	<1.4 U	4.4	<14 U	<1.4 U	<1.4 U	<1.4 U	<1.4 U	<1.4 U	16	<1.4 U	<1.4 U	<1.4 U	<1.4 U	0.7	<1.4 U	<1.4 U	<1.4 U
MW100	Lower Aquifer	7/27/2018	W-072718-ST-1364-MW	<1 U	<1 U	26	<1 U	<1 U	<1 U	4.7	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	16	<1 U	<5 U	0.2 J	<1 U	0.9	0.2	0.5	<1 U
MW100	Lower Aquifer	2/4/2019	W-020419-ST-1394-MW	<1 U	<1 U	33	0.3 J	<1 U	<1 U	6.8	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	19	<1 U	<5 U	<1 U	<1 U	1.1	0.2	0.9	<1 U
MW100	Lower Aquifer	7/29/2019	W-072919-AS-1447-MW	<1.7 U	<1.7 U	29	<1.7 U	<1.7 U	<1.7 U	6	<17 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	18	<1.7 U	<8.4 U	<1.7 U	<1.7 U	1.1 J	0.2 J	0.6 J	<1.7 U
MW100	Lower Aquifer	1/29/2020	W-012920-CM-1466-MW	<1 U	<1 U	26	<1 U	<1 U	<1 U	4.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	18	<1 U	<5 U	<1 U	<1 U	1.1	0.2 J	0.7 J	<1 U
MW100	Lower Aquifer	7/24/2020	W-072420-ST-1510	<1 U	<1 U	33 J	<1 U	<1 U	<1 U	3.9	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	24	<1 U	<5 U	<1 U	<1 U	1.2	<1 U	0.6 J	<1 U
MW101	Lower Aquifer	1/27/2016	W-012716-GL-1146-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.5	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<1 U
MW101	Lower Aquifer	1/27/2016	W-012716-GL-1147-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.5	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<1 U
MW101	Lower Aquifer	7/25/2016	W-072516-AS-1199-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.8	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.7	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<1 U
MW101	Lower Aquifer	1/17/2017	W-011717-GL-1237-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	4	<1 U	<1 U	<1 U	<1 U	<1 U	0.6	<1 U	<1 U
MW101	Lower Aquifer	9/8/2017	W-090817-AS-1275-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	4	<1 U	<1 U	<1 U	<1 U	<1 U	0.5	<1 U	<1 U
MW101	Lower Aquifer	1/30/2018	W-013018-ST-1309-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	4.8	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	6.3	<1 U	<1 U	<1 U	<1 U	0.3	0.7	<1 U	<1 U
MW101	Lower Aquifer	7/24/2018	W-072418-ST-1350-MW	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J	4.1	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	6.1	<1 U	<5 U	<1 U	<1 U	0.3	0.6	0.3 J	<1 U
MW101	Lower Aquifer	2/4/2019	W-020419-ST-1393-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.9	<1 U	<5 U	<1 U	<1 U	0.5	0.8	0.3 J	<1 U
MW101	Lower Aquifer	7/24/2019	W-072419-JZ-1433-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	6.1	<1 U	<5 U	<1 U	<1 U	0.4 J	0.9 J	0.4 J	<1 U
MW101	Lower Aquifer	1/31/2020	W-013120-CM-1475-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.2	<1 U	<5 U	<1 U	<1 U	0.3 J	1.2	<1 U	<1 U
MW101	Lower Aquifer	1/31/2020	W-013120-CM-1476-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.3	<1 U	<5 U	<1 U	<1 U	0.3 J	1.2	<1 U	<1 U
MW101	Lower Aquifer	7/22/2020	W-072220-ST-1503	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.9	<1 U	<5 U	<1 U	<1 U	<1 U	0.8 J	<1 U	<1 U
MW102	Lower Aquifer	8/3/2016	W-080316-GL-1228-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 UJ	<1 U	<1 U	2.8	<1 U	<1 U	<1 U	<1 U	<1 U	2	<1 U	<1 U
MW102	Lower Aquifer	9/6/2017	W-090617-AS-1267-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.3 J	<1 U	<1 U	<1 U	<1 U	<1 U	2.1	<1 U	<1 U	<1 U	<1 U	<1 U	0.9 J	<1 U	<1 U
MW102	Lower Aquifer	7/25/2018	W-072518-ST-1355-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	0.1 J	<1 U	<1 U	<1 U	<1 U	1.5	<1 U	<5 U	<1 U	0.2 J	<1 U	0.5 J	<1 U	<1 U
MW102	Lower Aquifer	7/20/2019	W-072019-JZ-1417-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.1	<1 U	<5 U	<1 U	0.5 J	<1 U	<1 U	<1 U	<1 U
MW103	Lower Aquifer	8/3/2016	W-080316-GL-1229-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 UJ	<1 U	<1 U	5.2	<1 U	<1 U	32	<1 U	1.3	23	<1 U	<1 U
MW103	Lower Aquifer	9/20/2017	W-092017-AS-1298-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	0.4 J	<1 U	<1 U	<1 U	6.5	<1 U	<1 U	17	<1 U	0.6 J	15	<1 U	<1 U
MW103	Lower Aquifer	7/26/2018	W-072618-ST-1362-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.3	<1 U	<5 U	13	<1 U	0.5 J	7.7	<1 U	<1 U
MW103	Lower Aquifer	7/25/2019	W-072519-JZ-1438-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.8	<1 U	<5 U	6.9	<1 U	<1 U	1.3	<1 U	<1 U
MW103	Lower Aquifer	7/13/2020	W-071320-AS-1485	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J	<1 U	<5 U	3.7	<1 U	<1 U	0.8 J	<1 U	<1 U
MW104	Lower Aquifer	8/3/2016	W-080316-GL-1231-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.6	<10 U	<1 U	<1 U	<1 UJ	<1 U	<1 U	15	<1 U	<1 U	<1 U	<1 U	0.7 J	20	4.1	<1 U
MW104	Lower Aquifer	9/11/2017	W-091117-AS-1279-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	15	<1 U	<1 U	<1 U	<1 U	0.8 J	18	3.6	<1 U
MW104	Lower Aquifer	9/11/2017	W-091117-AS-1280-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	15	<1 U	<1 U	<1 U	<1 U	0.9 J	19	3.8	<1 U
MW104	Lower Aquifer	7/27/2018	W-072718-ST-1363-MW	<1 U	<1 U	<1 U	0.3 J	<1 U	<1 U	2.8	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	16	<1 U	<5 U	0.3 J	<1 U	0.9 J	15	3.9	<1 U
MW104	Lower Aquifer	7/26/2019	W-072619-JZ-1443-MW	<1 U	<1 U	<1 U	0.2 J	<1 U	<1 U	2.7	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	16	<1 U	<5 U	<1 U	<1 U	0.9 J	13	7.4	<1 U
MW104	Lower Aquifer	7/15/2020	W-071520-AS-1491	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	23	<1 U	<5 U	<1 U	<1 U	1.1	16	3.3	<1 U
MW105	Lower Aquifer	8/3/2016	W-080316-GL-1230-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 UJ	<1 U	<1 U	9.6	<1 U	<1 U	<1 U	0.3 J	0.9 J	<1 U	<1 U	<1 U
MW105	Lower Aquifer	9/8/2017	W-090817-AS-1276-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.7	<1 U	<1 U	<1 U	<1 U	0.9 J	<1 U	<1 U	<1 U
MW105	Lower Aquifer	7/25/2018	W-072518-ST-1354-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	9.2	<1 U	<5 U	<1 U	<1 U	0.9 J	<1 U	<1 U	<1 U
MW105	Lower Aquifer	7/23/2019	W-072319-JZ-1431-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.7	<1 U	<5 U	<1 U	<1 U	0.6 J	<1 U	<1 U	<1 U
MW105	Lower Aquifer	7/9/2020	W-070920-AS-1480	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	10	<1 U	<5 U	<1 U	<1 U	1.1	<1 U	<1 U	<1 U
MW105	Lower Aquifer	7/9/2020	W-070920-AS-1481	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	11	<1 U	<5 U	<1 U	<1 U	1.3	<1 U	<1 U	<1 U
MW106	Lower Aquifer	7/13/2016	W-071316-AS-1171-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
MW106	Lower Aquifer	8/31/2017	W-083117-AS-1257-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
MW106	Lower Aquifer	7/18/2018	W-071818-ST-1329-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
MW106	Lower Aquifer	7/17/2019	W-071719-ST-1407-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
MW106	Lower Aquifer	6/30/2020	W-063020-AS-1462	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
MW107	Lower Aquifer	8/4/2016	W-080416-GL-1232-MW	<2 U	<2 U	13	1.4 J	<2 U	<2 U	<2 U	<20 U	<2 U	<2 U	<2 UJ	<2 U	<2 U	74	<2 U	<2 U	<2 U	<2 U	3.1	<2 U	5.4	<2 U	
MW107	Lower Aquifer	9/20/2017	W-092017-AS-1299-MW	<2 U	<2 U	14	1.5 J	<2 U	<2 U	<2 U	<20 U	<2 U	0.6 J	<2 U	<2 U	<2 U	78	<2 U	<2.3 U	<2 U	<2 U	3.6	<2 U	5.1	<2 U	
MW107	Lower Aquifer	7/27/2018	W-072718-ST-1365-MW	<1 U	<1 U	12	1.3	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	61	<1 U	<5 U	0.2 J	<1 U	2.6	<1 U	5.4	<1 U	82.5
MW107	Lower Aquifer	7/29/2019	W-072919-AS-1448-MW	<3.3 U	<3.3 U	6.6	1.3 J	<3.3 U	<3.3 U	<3.3 U	<33 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<3.3 U	66	<3.3 U	<17 U	<3.3 U	<3.3 U	2.3 J	<3.3 U		5.3	<3.3 U
MW107	Lower Aquifer	7/16/2020	W-071620-AS-1495	<1 U	<1 U	1.6	1.4	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	55	<1 U	<5 U	<1 U	<1 U	1.8	<1 U		6.5	<1 U
MW68	Lower Aquifer	7/19/2016	W-071916-AS-1186-MW	<13 U	<13 U	<13 U	<13 U	<13 U	7.5 J	300	<130 U	7.1 J	3.7 J	<13 U	5.3 J	<13 U	18	<13 U	<13 U	10 J	<13 U	<13 U	3.3 J		<13 U	<13 U
MW68	Lower Aquifer	9/14/2017	W-091417-AS-1293-MW	<5 U	<5 U	4.3 J	<5 U	<5 U	3.1 J	110	<50 U	6.6	2.7 J	<5 U	<5 U	<5 U	16	<5 U	<5 U	3.7 J	<5 U	<5 U	1.8 J		9	<5 U
MW68	Lower Aquifer	8/2/2018	W-080218-AS-1377-MW	<10 U	<10 U	3.5 J	<10 U	<10 U	5.3 J	200 J	<100 U	4.8 J	2.8 J	<10 U	3.1 J	<10 U	18	<10 U	<50 U	6.1 J	<10 U	<10 U	2.6 J		5.1 J	<10 U
MW68	Lower Aquifer	7/30/2019	W-073019-AS-1451-MW	<10 U	<10 U	3.3 J	<10 U	<10 U	4.2 J	200	<100 U	3.1 J	2.4 J	<10 U	2.9 J	<10 U	19	<10 U	<50 U	4.7 J	<10 U	<10 U	2.7 J		4.2 J	<10 U
MW68	Lower Aquifer	7/27/2020	W-072720-ST-1514	<10 U	<10 U	<10 U	<10 U	<10 U	5.3 J	180	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	15	<10 U	<50 U	6 J	<10 U	<10 U	4.1 J		<10 U	<10 U
MW69	Lower Aquifer	7/19/2016	W-071916-AS-1185-MW	<1 U	<1 U	<1 U	<1 U	<1 U	1.7	2.1	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	0.3 J		0.5 J	<1 U
MW69	Lower Aquifer	9/5/2017	W-090517-AS-1264-MW	<1 U	<1 U	<1 U	<1 U	<1 U	1.7	1.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW69	Lower Aquifer	9/5/2017	W-090517-AS-1265-MW	<1 U	<1 U	<1 U	<1 U	<1 U	1.8	1.7	2 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW69	Lower Aquifer	7/20/2018	W-072018-ST-1342-MW	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	1.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW69	Lower Aquifer	7/21/2019	W-072119-JZ-1421-MW	<1 U	<1 U	0.7 J	<1 U	<1 U	1.5	18	<10 U	4.3	0.3 J	<1 U	<1 U	<1 U	1.3	3.8	<5 U	<1 U	4	<1 U	0.2 J		8.7	14
MW69	Lower Aquifer	7/15/2020	W-071520-AS-1492	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	1.1	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1	<1 U	<5 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW70	Lower Aquifer	7/19/2016	W-071916-AS-1184-MW		<1 U	<1 U	<1 U	<1 U	<1 U	2.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.9	<1 U	<1 U	<1 U	0.3 J	<1 U	<1 U		18	<1 U
MW70	Lower Aquifer	9/14/2017	W-091417-AS-1292-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	4	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		7.5	<1 U
MW70	Lower Aquifer	7/20/2018	W-072018-ST-1341-MW	<1 U	<1 U	0.2	<1 U	<1 U	<1 U	1.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.9	<1 U	<5 U	<1 U	0.2 J	0.2 J	<1 U		9.2	<1 U
MW70	Lower Aquifer	7/23/2019	W-072319-JZ-1428-MW	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	8.2	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	2.5	0.3 J	<10 U	<2 U	1.1 J	<2 U	<2 U		47	<2 U
MW70	Lower Aquifer	7/23/2019	W-072319-JZ-1429-MW	<2 U	<2 U	<2 U	<2 U	<2 U	<2 U	8	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	2.3	<2 U	<10 U	<2 U	1 J	<2 U	<2 U		50	<2 U
MW70	Lower Aquifer	7/15/2020	W-071520-AS-1493	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.1	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		1.9	<1 U
MW71	Lower Aquifer	7/21/2016	W-072116-AS-1187-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.3	<1 U	<1 U	<1 U	<1 U	<1 U	13		<1 U	<1 U
MW71	Lower Aquifer	9/12/2017	W-091217-AS-1286-MW	0.3 J	<1 U	0.5 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.1	<1 U	<1 U	<1 U	<1 U	<1 U	11		<1 U	<1 U
MW71	Lower Aquifer	7/23/2018	W-072318-ST-1347-MW	<1 U	<1 U	0.6 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	14	<1 U	<5 U	<1 U	<1 U	<1 U	4.4		<1 U	<1 U
MW71	Lower Aquifer	7/24/2019	W-072419-JZ-1435-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	8	<1 U	<5 U	<1 U	<1 U	<1 U	8		<1 U	<1 U
MW71	Lower Aquifer	7/22/2020	W-072220-ST-1504	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.4	<1 U	<5 U	<1 U	<1 U	<1 U	6.5		<1 U	<1 U
MW72	Lower Aquifer	7/14/2016	W-071416-AS-1175-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.6	<1 U	<1 U	<1 U	<1 U	<1 U	0.9 J		<1 U	<1 U
MW72	Lower Aquifer	9/5/2017	W-090517-AS-1262-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.7 J	<1 U	<1 U	<1 U	<1 U	<1 U	2.2		<1 U	<1 U
MW72	Lower Aquifer	7/23/2018	W-072318-ST-1346-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	4.2	<1 U	<5 U	<1 U	<1 U	<1 U	0.2 J		<1 U	<1 U
MW72	Lower Aquifer	7/21/2019	W-072119-JZ-1422-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW72	Lower Aquifer	7/21/2020	W-072120-ST-1500	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.1	<1 U	<5 U	<1 U	<1 U	<1 U	5.2		<1 U	<1 U
MW73	Lower Aquifer	7/12/2016	W-071216-AS-1163-MW	<1 U	<1 U	0.7 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J		<1 U	<1 U
MW73	Lower Aquifer	8/29/2017	W-082917-AS-1250-MW	<1 U	<1 U	0.7 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.6 J	<1 U	<1 U	<1 U	<1 U	<1 U	1.1		<1 U	<1 U
MW73	Lower Aquifer	7/19/2018	W-071918-ST-1338-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW73	Lower Aquifer	7/19/2019	W-071919-JZ-1412-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.7	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW73	Lower Aquifer	7/22/2020	W-072220-ST-1502	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.5	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW74	Lower Aquifer	7/12/2016	W-071216-AS-1164-MW		<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW74	Lower Aquifer	8/30/2017	W-083017-AS-1254-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW74	Lower Aquifer	7/18/2018	W-071818-ST-1330-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 UJ	<1 U	<1 U	<1 U	<1 UJ	<1 U	<1 U	<5 U	<1 U	<1 UJ	<1 U	<1 U		<1 U	<1 UJ
MW74	Lower Aquifer	7/18/2018	W-071818-ST-1331-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW74	Lower Aquifer	7/17/2019	W-071719-ST-1408-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW74	Lower Aquifer	6/30/2020	W-063020-AS-1464	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW75	Lower Aquifer	7/12/2016	W-071216-AS-1166-MW		<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW75	Lower Aquifer	8/30/2017	W-083017-AS-1256-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW75	Lower Aquifer	7/18/2018	W-071818-ST-1332-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
MW75	Lower Aquifer	7/17/2019	W-071719-ST-1409-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW75	Lower Aquifer	6/30/2020	W-063020-AS-1463	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW76	Lower Aquifer	7/12/2016	W-071216-AS-1165-M	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.6	<1 U	<1 U	<1 U	<1 U	<1 U	1 J		<1 U	<1 U
MW76	Lower Aquifer	8/30/2017	W-083017-AS-1255-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.9	<1 U	<1 U	<1 U	<1 U	<1 U	1.1		<1 U	<1 U
MW76	Lower Aquifer	7/19/2018	W-071918-ST-1339-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.5	<1 U	<5 U	<1 U	<1 U	<1 U	1.3		<1 U	<1 U
MW76	Lower Aquifer	7/20/2019	W-072019-JZ-1418-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<5 U	<1 U	<1 U	<1 U	1 J		<1 U	<1 U
MW76	Lower Aquifer	6/30/2020	W-063020-AS-1465	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.9 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW77	Lower Aquifer	7/14/2016	W-071416-AS-1172-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW77	Lower Aquifer	9/1/2017	W-090117-AS-1259-MW	<1 U	<1 U	0.2 U	<1 U	<1 U	<1 U	1.9 U	<10 U	<1 U	0.3 U	<1 U	<1 U	<1 U	1.3 J	<1 U	<5 U	<1 U	<1 U	<1 U	3.7 J		<1 U	<1 U
MW77	Lower Aquifer	7/18/2018	W-071818-ST-1334-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	1.9	<10 U	<1 U	0.3 J	<1 U	<1 U	<1 U	1.3	<1 U	<5 U	<1 U	<1 U	<1 U	3.7		<1 U	<1 U
MW77	Lower Aquifer	7/22/2019	W-072219-JZ-1426-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<5 U	<1 U	0.6 J	<1 U	0.8 J		<1 U	<1 U
MW77	Lower Aquifer	7/1/2020	W-070120-AS-1468	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	1.4		<1 U	<1 U
MW78	Lower Aquifer	7/14/2016	W-071416-AS-1174-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.2 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.3	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW78	Lower Aquifer	9/1/2017	W-090117-AS-1261-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW78	Lower Aquifer	7/18/2018	W-071818-ST-1335-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<5 U	<1 U	<1 U	<1 U	0.3 J		<1 U	<1 U
MW78	Lower Aquifer	7/19/2019	W-071919-JZ-1414-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW78	Lower Aquifer	7/6/2020	W-070620-AS-1469	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW79	Lower Aquifer	7/14/2016	W-071416-AS-1173-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.4 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1	<1 U	<1 U	<1 U	<1 U	<1 U	4.3		<1 U	<1 U
MW79	Lower Aquifer	9/1/2017	W-090117-AS-1260-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1	<1 U	<1 U	<1 U	<1 U	<1 U	3.5		<1 U	<1 U
MW79	Lower Aquifer	7/26/2018	W-072618-ST-1360-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.7 J		<1 U	<1 U
MW79	Lower Aquifer	7/19/2019	W-071919-JZ-1413-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J	<10 U	<1 U	0.2 J	<1 U	<1 U	<1 U	1.2	<1 U	<5 U	<1 U	<1 U	<1 U	2.8		<1 U	<1 U
MW79	Lower Aquifer	7/7/2020	W-070720-AS-1474	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<5 U	<1 U	<1 U	<1 U	1.9		<1 U	<1 U
MW80	Lower Aquifer	7/15/2016	W-071516-AS-1179-MW	<1 U	<1 U	0.7 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J		<1 U	<1 U
MW80	Lower Aquifer	9/6/2017	W-090617-AS-1269-MW	<1 U	<1 U	1 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW80	Lower Aquifer	7/24/2018	W-072418-ST-1348-MW	<1 U	<1 U	1.1	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<5 U	0.6 J	<1 U	<1 U	0.4 J		<1 U	<1 U
MW80	Lower Aquifer	7/21/2019	W-072119-JZ-1420-MW	<1 U	<1 U	1	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.2 J		<1 U	<1 U
MW80	Lower Aquifer	7/6/2020	W-070620-AS-1471	<1 U	<1 U	0.7 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.8 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW81	Lower Aquifer	7/15/2016	W-071516-AS-1180-MW	<1 U	<1 U	<1 U	<1 U	0.9 J	0.7 J	<10 U	1.1		<1 U	<1 U	<1 U	<1 U	1.7	0.3 J	<1 U	<1 U	1.4	<1 U	<1 U		<1 U	0.95 J
MW81	Lower Aquifer	9/6/2017	W-090617-AS-1268-MW	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<10 U	1.1		<1 U	<1 U	<1 U	0.3 J	0.4 J	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	1.6
MW81	Lower Aquifer	7/20/2018	W-072018-ST-1340-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	0.7 J	1 J	<10 U	0.3 J	<1 U	<1 U	0.3 J	<1 U	5.1	0.2 J	<5 U	1 J	<1 U	<1 U	0.2 J		<1 U	0.62 J
MW81	Lower Aquifer	7/23/2019	W-072319-JZ-1427-MW	<1 U	<1 U	<1 U	<1 U	<1 U	0.8 J	0.9 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.2	0.3 J	<5 U	<1 U	<1 U	<1 U	0.3 J		<1 U	0.72 J
MW81	Lower Aquifer	7/13/2020	W-071320-AS-1482	<1 U	<1 U	0.2 J	<1 U	<1 U	2	0.9 J	<10 U	<1 U	0.2 J	<1 U	0.2 J	<1 U	3.3	<1 U	<5 U	<1 U	<1 U	<1 U	0.3 J		1.3	<1 U
MW82	Lower Aquifer	8/1/2016	W-080116-JC-1219-MW	<1 U	<1 U	<1 U	<1 U	0.5 J	1.3		<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<1 U	<1 U	<1 U	<1 U	0.8 J		<1 U	<1 U
MW82	Lower Aquifer	9/20/2017	W-092017-AS-1301-MW	<1 U	<1 U	<1 U	<1 U	0.4 J	1.2		<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.3 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.7 J		<1 U	<1 U
MW82	Lower Aquifer	8/2/2018	W-080218-AS-1380-MW	<1 U	<1 U	<1 U	<1 U	0.3 J	0.9 J		<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.9 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW82	Lower Aquifer	7/22/2019	W-072219-JZ-1423-MW	<1 U	<1 U	<1 U	<1 U	0.4 J	1.2		<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<5 U	<1 U	<1 U	<1 U	0.6 J		<1 U	<1 U
MW82	Lower Aquifer	7/8/2020	W-070820-AS-1475	<1 U	<1 U	<1 U	<1 U	0.3 J	0.9 J		<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.4	<1 U	<5 U	<1 U	<1 U	<1 U	0.7 J		<1 U	<1 U
MW83	Lower Aquifer	7/18/2016	W-071816-AS-1181-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1 J	<10 U	<1 U	0.3 J	<1 U	<1 U	<1 U	1.5	<1 U	<1 U	0.3 J	<1 U	<1 U	0.9 J		<1 U	<1 U
MW83	Lower Aquifer	9/7/2017	W-090717-AS-1271-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.3	<10 U	<1 U	0.3 J	<1 U	<1 U	<1 U	1.6	<1 U	<1 U	<1 U	<1 U	<1 U	0.9 J		<1 U	<1 U
MW83	Lower Aquifer	7/23/2018	W-072318-ST-1344-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	1.3	<10 U	<1 U	0.4 J	<1 U	<1 U	<1 U	2	<1 U	<5 U	0.3 J	<1 U	<1 U	1 J		<1 U	<1 U
MW83	Lower Aquifer	7/22/2019	W-072219-JZ-1425-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	1.1	<10 U	<1 U	0.4 J	<1 U	<1 U	<1 U	2	<1 U	<5 U	0.2 J	<1 U	<1 U	1		<1 U	<1 U
MW83	Lower Aquifer	7/8/2020	W-070820-AS-1477	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	1.3	<10 U	<1 U	0.4 J	<1 U	<1 U	<1 U	1.8	<1 U	<5 U	0.8 J	<1 U	<1 U	1.2		<1 U	<1 U
MW84	Lower Aquifer	7/18/2016	W-071816-AS-1182-MW		<1 U	0.3 J	<1 U	<1 U	<1 U	1.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.5	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW84	Lower Aquifer	9/7/2017	W-090717-AS-1272-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	1.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.4	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW84	Lower Aquifer	7/23/2018	W-072318-ST-1345-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	1.3	<10 U	<1 U	0.2 J	<1 U	0.2 J	<1 U	2.4	<1 U	<5 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW84	Lower Aquifer	7/22/2019	W-072219-JZ-1424-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	1.1	<10 U	<1 U	0.2 J	<1 U	0.2 J	<1 U	2.1	<1 U	<5 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW84	Lower Aquifer	7/8/2020	W-070820-AS-1476	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	1	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2	<1 U	<5 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW85	Lower Aquifer	7/21/2016	W-072116-AS-1191-MW	1.2	<1 U	0.5 J	<1 U	<1 U	<1 U	7.4	<10 U	<1 U	<1 U	<1 U	0.5 J	<1 U	2.5	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW85	Lower Aquifer	9/12/2017	W-091217-AS-1284-MW	0.9 J	<1 U	0.5 J	<1 U	<1 U	<1 U	6.7	<10 U	<1 U	<1 U	<1 U	0.4 J	<1 U	2.2	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW85	Lower Aquifer	7/25/2018	W-072518-ST-1353-MW	0.8 J	0.2 J	0.5 J	<1 U	0.1 J	<1 U	5.9	<10 U	<1 U	0.2 J	<1 U	0.2 J	<1 U	2.4	<1 U	<5 U	<1 U	<1 U	0.2 J	0.5 J		<1 U	<1 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
MW85	Lower Aquifer	7/24/2019	W-072419-JZ-1432-MW	0.5 J	0.1 J	0.5 J	<1 U	<1 U	<1 U	4.4	<10 U	<1 U	0.3 J	<1 U	<1 U	<1 U	2.2	<1 U	<5 U	<1 U	<1 U	<1 U	0.4 J		0.2 J	<1 U
MW85	Lower Aquifer	7/13/2020	W-071320-AS-1483	0.6 J	<1 U	0.4 J	<1 U	<1 U	<1 U	4.2	<10 U	<1 U	0.2 J	<1 U	0.2 J	<1 U	2.2	<1 U	<5 U	<1 U	<1 U	<1 U	0.5 J		<1 U	<1 U
MW86	Lower Aquifer	7/21/2016	W-072116-AS-1192-MW	<1 U	<1 U	2.2	<1 U	<1 U	<1 U	<1 U	<10 U	1.1	<1 U	<1 U	<1 U	<1 U	6.6	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U		0.7 J	<1 U
MW86	Lower Aquifer	9/12/2017	W-091217-AS-1283-MW	<1 U	<1 U	2.6	<1 U	<1 U	<1 U	<1 U	<10 U	1	<1 U	<1 U	<1 U	<1 U	2.3	<1 U	<1 U	<1 U	<1 U	0.4	<1 U		5	<1 U
MW86	Lower Aquifer	7/25/2018	W-072518-ST-1357-MW	<1 U	<1 U	2.1	<1 U	<1 U	<1 U	<1 U	<10 U	1.5	<1 U	<1 U	<1 U	<1 U	1.5	<1 U	<5 U	<1 U	4.8	0.5	<1 U		5.6	<1 U
MW86	Lower Aquifer	7/24/2019	W-072419-JZ-1434-MW	<1 U	<1 U	1.5	0.2 J	<1 U	<1 U	<1 U	<10 U	0.5 J	<1 U	<1 U	<1 U	<1 U	2.5	<1 U	<5 U	<1 U	<1 U	0.3 J	<1 U		2.1	<1 U
MW86	Lower Aquifer	7/9/2020	W-070920-AS-1479	<1 U	<1 U	2.2	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.2	<1 U	<5 U	<1 U	<1 U	0.4 J	<1 U		4.8 J	<1 U
MW87	Lower Aquifer	1/28/2016	W-012816-GL-1156-MW	<1 U	<1 U	11	<1 U	<1 U	<1 U	8	<10 U	<1 U	<1 U	<1 U	0.4 J	<1 U	6.7	<1 U	<1 U	<1 U	0.3 J	0.9 J	<1 U		<1 U	<1 U
MW87	Lower Aquifer	7/21/2016	W-072116-AS-1188-MW	<1 U	<1 U	11	0.5 J	<1 U	<1 U	13	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.8	<1 U	<1 U	<1 U	<1 U	1.3	<1 U		<1 U	<1 U
MW87	Lower Aquifer	1/19/2017	W-011917-GL-1245-MW	<1 U	<1 U	14	0.7 J	<1 U	<1 U	14	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	9.9	<1 U	<1 U	<1 U	<1 U	1.6	<1 U		<1 U	<1 U
MW87	Lower Aquifer	9/12/2017	W-091217-AS-1285-MW	<1 U	<1 U	13	0.6 J	<1 U	<1 U	15	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.2	<1 U	<1 U	<1 U	<1 U	1.2	<1 U		<1 U	<1 U
MW87	Lower Aquifer	1/31/2018	W-013118-ST-1316-MW	<1 U	<1 U	17	0.5 J	<1 U	<1 U	21	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	10	<1 U	<1 U	<1 U	<1 U	1.7	<1 U		<1 U	<1 U
MW87	Lower Aquifer	7/25/2018	W-072518-ST-1352-MW	<1 U	<1 U	14	0.6 J	<1 U	<1 U	14	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.9	<1 U	<5 U	<1 U	<1 U	1.3	<1 U		<1 U	<1 U
MW87	Lower Aquifer	2/1/2019	W-020119-CM-1388-MW	<1 U	<1 U	6	0.2 J	<1 U	<1 U	7.7	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.3	<1 U	<5 U	<1 U	<1 U	0.5	<1 U		<1 U	<1 U
MW87	Lower Aquifer	7/26/2019	W-072619-JZ-1442-MW	<1 U	<1 U	6.7	<1 U	<1 U	<1 U	11	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.9	<1 U	<5 U	<1 U	<1 U	0.5 J	<1 U		<1 U	<1 U
MW87	Lower Aquifer	1/29/2020	W-012920-CM-1465-MW	<1 U	<1 U	9.5	<1 U	<1 U	<1 U	15	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.3	<1 U	<5 U	<1 U	<1 U	0.6 J	<1 U		0.3 J	<1 U
MW87	Lower Aquifer	7/23/2020	W-072320-ST-1506	<1 U	<1 U	6.5	<1 U	<1 U	<1 U	4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.7	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW88	Lower Aquifer	7/21/2016	W-072116-AS-1189-MW	<1 U	<1 U	0.5 J	<1 U	<1 U	<1 U	0.6 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U		<1 U	<1 U
MW88	Lower Aquifer	9/7/2017	W-090717-AS-1273-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW88	Lower Aquifer	7/17/2018	W-071718-ST-1328-MWW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW88	Lower Aquifer	7/16/2019	W-071619-ST-1402-MW	<1 U	<1 U	0.5 J	<1 U	<1 U	<1 U	0.6 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.9 J	<1 U	<5 U	<1 U	<1 U	0.3 J	<1 U		<1 U	<1 U
MW88	Lower Aquifer	7/6/2020	W-070620-AS-1470	<1 U	<1 U	0.5 J	<1 U	<1 U	<1 U	0.5 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U	<5 U	<1 U	<1 U	0.2 J	<1 U		<1 U	<1 U
MW89	Lower Aquifer	7/21/2016	W-072116-AS-1190-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	1.4	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	4.5	<1 U	<1 U	<1 U	<1 U	1.2	1.5		<1 U	<1 U
MW89	Lower Aquifer	9/8/2017	W-090817-AS-1274-MW	<1 U	<1 U	0.4	<1 U	<1 U	<1 U	1.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	4.4	<1 U	<1 U	<1 U	<1 U	1	1.1		<1 U	<1 U
MW89	Lower Aquifer	7/26/2018	W-072618-ST-1359-MW	<1 U	<1 U	0.5	<1 U	<1 U	<1 U	1.2	<10 U	<1 U	0.2 J	<1 U	<1 U	<1 U	4.9	<1 U	<5 U	<1 U	<1 U	1	1.1		<1 U	<1 U
MW89	Lower Aquifer	7/23/2019	W-072319-JZ-1430-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	0.4 J	<10 U	<1 U	0.2 J	<1 U	<1 U	<1 U	5.4	<1 U	<5 U	<1 U	<1 U	0.8 J	0.7 J		0.4 J	0.51 J
MW89	Lower Aquifer	7/13/2020	W-071320-AS-1484	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	0.4 J	<10 U	<1 U	0.2 J	<1 U	<1 U	<1 U	6.8	<1 U	<5 U	<1 U	<1 U	0.7 J	0.7 J		<1 U	<1 U
MW91	Lower Aquifer	1/28/2016	W-012816-GL-1161-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.8 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.6 J		0.6 J	<1 U
MW91	Lower Aquifer	7/13/2016	W-071316-AS-1167-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.6 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J		0.8 J	<1 U
MW91	Lower Aquifer	7/13/2016	W-071316-AS-1168-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.6 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J		0.8 J	<1 U
MW91	Lower Aquifer	1/17/2017	W-011717-GL-1238-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.5	<1 U	<1 U	<1 U	<1 U	<1 U	0.6		0.9	<1 U
MW91	Lower Aquifer	8/29/2017	W-082917-AS-1251-MW	<1 U	<1 U	0.9 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.8	<1 U	<1 U	<1 U	<1 U	<1 U	0.5		1.1	<1 U
MW91	Lower Aquifer	1/31/2018	W-013118-ST-1315-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.6	<1 U	<1 U	<1 U	<1 U	<1 U	0.5		1.2	<1 U
MW91	Lower Aquifer	7/24/2018	W-072418-ST-1349-MW	<1 U	<1 U	0.8 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.6	<1 U	<5 U	<1 U	<1 U	<1 U	0.5		1.2	<1 U
MW91	Lower Aquifer	1/29/2019	W-012919-CM-1385-MW	<1 U	<1 U	1.6	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	<1 U	<5 U	<1 U	<1 U	<1 U	0.3		1.2	<1 U
MW91	Lower Aquifer	7/20/2019	W-072019-JZ-1419-MW	<1 U	<1 U	1.7	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.1	<1 U	<5 U	<1 U	<1 U	<1 U	0.3 J		1.1	<1 U
MW91	Lower Aquifer	1/31/2020	W-013120-CM-1474-MW	<1 U	<1 U	1.2	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1 J	<1 U	<5 U	<1 U	<1 U	<1 U	0.3 J		1.2	<1 U
MW92	Lower Aquifer	1/28/2016	W-012816-GL-1158-MW	<1 U	<1 U	2.7	1.6	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	1.5	<1 U	<1 U	21	<1 U	<1 U	<1 U	<1 U	1.7	<1 U		6.2	<1 U
MW92	Lower Aquifer	1/28/2016	W-012816-GL-1159-MW	<1 U	<1 U	2.8	1.7	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	1.4	<1 U	<1 U	23	<1 U	<1 U	<1 U	<1 U	1.8	<1 U		6.2	<1 U
MW92	Lower Aquifer	7/15/2016	W-071516-AS-1177-MW	<1 U	<1 U	1.8	1.7	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	22	<1 U	<1 U	<1 U	<1 U	1.7	<1 U		6.2	<1 U
MW92	Lower Aquifer	1/18/2017	W-011817-GL-1242-MW	<1 U	<1 U	1.9	2.1	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	26	<1 U	<1 U	<1 U	<1 U	2.2	<1 U		7.5	<1 U
MW92	Lower Aquifer	9/20/2017	W-092017-AS-1302-MW	<1 U	<1 U	1.7	2.3	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	24	<1 U	<1 U	<1 U	<1 U	2.2	<1 U		6.9	<1 U
MW92	Lower Aquifer	1/31/2018	W-013118-ST-1317-MW	<1 U	<1 U	1.3	1.1	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	18	<1 U	<1 U	<1 U	<1 U	1.3	<1 U		5.8	<1 U
MW92	Lower Aquifer	7/26/2018	W-072618-ST-1361-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		0.8 J	<1 U
MW92	Lower Aquifer	2/7/2019	W-020719-CM-1399-MW	<1 U	<1 U	2.1	1.9	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	22	<1 U	<5 U	<1 U	<1 U	2	<1 U		8.7	<1 U
MW92	Lower Aquifer	7/18/2019	W-071819-ST-1410-MW	<1 U	<1 U	1.9	1.8	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	22	<1 U	<5 U	<1 U	<1 U	2	<1 U		6.5	<1 U
MW92	Lower Aquifer	1/29/2020	W-012920-CM-1469-MW	<1 U	<1 U	1.5	1 J	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	14	<1 U	<5 U	<1 U	<1 U	1.3	<1 U		9	<1 U
MW92	Lower Aquifer	7/14/2020	W-071420-AS-1489	<1 U	<1 U	1.8	1.7	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	18	<1 U	<5 U	<1 U	<1 U	1.8	<1 U		6.1	<1 U
MW93	Lower Aquifer	7/15/2016	W-071516-AS-1176-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		0.8 J	<1 U
MW93	Lower Aquifer	9/6/2017	W-090617-AS-1266-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		0.8 J	<1 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
MW93	Lower Aquifer	7/18/2018	W-071818-ST-1333-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		0.8 J	<1 U
MW93	Lower Aquifer	7/18/2019	W-071819-ST-1411-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		0.7 J	<1 U
MW93	Lower Aquifer	7/1/2020	W-070120-AS-1466	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		1.1	<1 U
MW94	Lower Aquifer	1/28/2016	W-012816-GL-1155-MW	<1 U	<1 U	0.9 J	<1 U	<1 U	<1 U	2.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	7/22/2016	W-072216-AS-1193-MW	<1 U	<1 U	0.8 J	<1 U	<1 U	<1 U	2.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	7/22/2016	W-072216-AS-1194-MW	<1 U	<1 U	0.8 J	<1 U	<1 U	<1 U	2.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	1/17/2017	W-011717-GL-1239-MW	<1 U	<1 U	1.1	<1 U	<1 U	<1 U	1.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	9/7/2017	W-090717-AS-1270-MW	<1 U	<1 U	0.9	<1 U	<1 U	<1 U	0.8	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	1/30/2018	W-013018-ST-1311-MW	<1 U	<1 U	1	<1 U	<1 U	<1 U	1.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	7/19/2018	W-071918-ST-1337-MW	<1 U	<1 U	0.8	<1 U	<1 U	<1 U	0.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	2/1/2019	W-020119-CM-1389-MW	<1 U	<1 U	0.6	<1 U	<1 U	<1 U	1.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	7/20/2019	W-072019-JZ-1416-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.1	<1 U	<5 U	<1 U	0.5 J	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	1/30/2020	W-013020-CM-1471-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW94	Lower Aquifer	7/7/2020	W-070720-AS-1472	<1 U	<1 U	0.5 J	<1 U	<1 U	<1 U	2.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW95	Lower Aquifer	1/28/2016	W-012816-GL-1154-MW	<5 U	3.1 J	3.4 J	<5 U	2.3 J	<5 U	130	<50 U	2.6 J	<5 U	<5 U	<5 U	<5 U	8.6	<5 U	<5 U	<5 U	<5 U	2.5 J	1.5 J	<5 U
MW95	Lower Aquifer	7/22/2016	W-072216-AS-1195-MW	<2 U	0.9 J	2.2	<2 U	1 J	<2 U	45	<20 U	2.2	<2 U	<2 U	<2 U	<2 U	7.6	<2 U	<2 U	<2 U	<2 U	<2 U	1.7 J	1.6 J	<2 U
MW95	Lower Aquifer	1/19/2017	W-011917-GL-1248-MW	<6.7 U	<6.7 U	4.1	<6.7 U	<6.7 U	<6.7 U	180	<67 U	3.7	<6.7 U	<6.7 U	<6.7 U	<6.7 U	16	<6.7 U	<6.7 U	<6.7 U	<6.7 U	<6.7 U	<6.7 U		3.8	<6.7 U
MW95	Lower Aquifer	9/14/2017	W-091417-AS-1294-MW	<6.7 U	<6.7 U	4.1	<6.7 U	<6.7 U	<6.7 U	180	<67 U	3.7	<6.7 U	<6.7 U	<6.7 U	<6.7 U	16	<6.7 U	<6.7 U	<6.7 U	<6.7 U	<6.7 U	<6.7 U		3.8	<6.7 U
MW95	Lower Aquifer	1/30/2018	W-013018-ST-1310-MW	<10 U	<10 U	3.6	<10 U	<10 U	<10 U	160	<100 U	3.9	<10 U	<10 U	<10 U	<10 U	14	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U		<10 U	<10 U
MW95	Lower Aquifer	8/1/2018	W-080118-AS-1371-MW	<1 U	0.4 J	3.5	0.3 J	<1 U	<1 U	25	<10 U	4	0.2 J	<1 U	<1 U	<1 U	6.5	<1 U	<5 U	<1 U	<1 U	0.5	0.4		6.5	<1 U
MW95	Lower Aquifer	2/1/2019	W-020119-CM-1390-MW	<1 U	0.5 J	3.8	0.4 J	0.4 J	<1 U	17	<10 U	4.6	0.2 J	<1 U	<1 U	<1 U	6.8	<1 U	<5 U	<1 U	<1 U	0.5	0.4		5.1	<1 U
MW95	Lower Aquifer	7/26/2019	W-072619-JZ-1445-MW	<1 U	0.7 J	2.8	0.3 J	<1 U	<1 U	35	<10 U	3.5	0.3 J	<1 U	<1 U	<1 U	8.8	<1 U	<5 U	<1 U	<1 U	0.3 J	0.4 J		2.4	<1 U
MW95	Lower Aquifer	1/30/2020	W-013020-CM-1470-MW	<1 U	<1 U	2.9	<1 U	<1 U	<1 U	25	<10 U	3.1	0.3 J	<1 U	<1 U	<1 U	5.1	<1 U	<5 U	<1 U	<1 U	0.3 J	0.2 J		4.5	<1 U
MW95	Lower Aquifer	7/23/2020	W-072320-ST-1509	<1 U	<1 U	2.3	<1 U	<1 U	<1 U	11	<10 U	2.6	<1 U	<1 U	<1 U	<1 U	2.9	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		4	<1 U
MW96	Lower Aquifer	7/13/2016	W-071316-AS-1170-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW96	Lower Aquifer	8/30/2017	W-083017-AS-1252-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW96	Lower Aquifer	7/17/2018	W-071718-ST-1326-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW96	Lower Aquifer	7/16/2019	W-071619-ST-1403-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW96	Lower Aquifer	7/16/2019	W-071619-ST-1404-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW96	Lower Aquifer	7/21/2020	W-072120-ST-1498	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW97	Lower Aquifer	7/13/2016	W-071316-AS-1169-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW97	Lower Aquifer	8/30/2017	W-083017-AS-1253-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW97	Lower Aquifer	7/17/2018	W-071718-ST-1327-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW97	Lower Aquifer	7/16/2019	W-071619-ST-1405-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	0.2 J		<1 U	<1 U
MW97	Lower Aquifer	7/21/2020	W-072120-ST-1499	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	0.4 J		<1 U	<1 U
MW98	Lower Aquifer	7/22/2016	W-072216-AS-1196-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.7	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.1	<1 U	<1 U	<1 U	<1 U	0.4 J	8.1		1.2	<1 U
MW98	Lower Aquifer	9/8/2017	W-090817-AS-1277-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5.6	<1 U	<1 U	<1 U	<1 U	0.4 J	5		4.5	<1 U
MW98	Lower Aquifer	7/26/2018	W-072618-ST-1358-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.9	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.6	<1 U	<5 U	<1 U	<1 U	0.5 J	5.9		5	<1 U
MW98	Lower Aquifer	7/25/2019	W-072519-JZ-1437-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	5	<1 U	<5 U	<1 U	0.4 J	0.3 J	2.7		6.3	<1 U
MW98	Lower Aquifer	7/14/2020	W-071420-AS-1486	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	1.8	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.5	<1 U	<5 U	<1 U	<1 U	0.5 J	5.1		3.8	<1 U
MW99	Lower Aquifer	7/18/2016	W-071816-AS-1183-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.3	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW99	Lower Aquifer	8/31/2017	W-083117-AS-1258-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.5	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
MW99	Lower Aquifer	7/19/2018	W-071918-ST-1336-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	0.6 J	<1 U	<5 U	<1 U	0.3 J	<1 U	<1 U		<1 U	<1 U
MW99	Lower Aquifer	7/19/2019	W-071919-JZ-1415-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1	<1 U	<5 U	<1 U	<1 U	0.2 J	<1 U		0.3 J	<1 U
MW99	Lower Aquifer	7/1/2020	W-070120-AS-1467	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.2	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
PZ3	Lower Aquifer	1/28/2016	W-012816-GL-1157-PZ		<1 U	2.5	<1 U	<1 U	<1 U	26	<10 U	3.1	<1 U	<1 U	<1 U	<1 U	9	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U		0.3 J	<1 U
PZ3	Lower Aquifer	7/25/2016	W-072516-AS-1200-PZ		<1 U	2.8	0.5 J	<1 U	<1 U	10	<10 U	3.8	0.3 J	<1 U	<1 U	<1 U	10	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U		<1 U	<1 U
PZ3	Lower Aquifer	2/6/2017	W-020617-GL-1249-PZ	<1 U	<1 U	2.8	0.5 J	<1 U	<1 U	8.2	<10 U	4	<1 U	<1 U	<1 U	<1 U	8.8	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U		<1 U	<1 U
PZ3	Lower Aquifer	9/13/2017	W-091317-AS-1287-PZ	<1 U	<1 U	2.7	0.5 J	<1 U	<1 U	13	<10 U	3.9	<1 U	<1 U	<1 U	<1 U	7.9	<1 U	<1 U	<1 U	<1 U	0.5 J	<1 U		<1 U	<1 U
PZ3	Lower Aquifer	1/31/2018	W-013118-ST-1318-PZ	<1 U	<1 U	2.8	0.3 J	<1 U	<1 U	11	<10 U	4.2	<1 U	<1 U	<1 U	<1 U	7.8	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U		<1 U	<1 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
PZ3	Lower Aquifer	7/30/2018	W-073018-AS-1366-PZ	<1 U	<1 U	2.5	0.5 J	<1 U	<1 U	14	<10 U	4.2	0.2 J	<1 U	<1 U	<1 U	6.7	<1 U	<5 U	<1 U	<1 U	0.3 J	0.2 J		<1 U	<1 U
PZ3	Lower Aquifer	1/29/2019	W-012919-CM-1386-PZ	<1 U	<1 U	2.8	0.4 J	<1 U	<1 U	9.7	<10 U	4.2	0.2 J	<1 U	<1 U	<1 U	7.2	<1 U	<5 U	<1 U	<1 U	0.5 J	0.1 J		<1 U	<1 U
PZ3	Lower Aquifer	7/25/2019	W-072519-JZ-1440-PZ	<1 U	<1 U	2.8	0.3 J	<1 U	<1 U	8.5	<10 U	3.6	0.2 J	<1 U	<1 U	<1 U	7.6	<1 U	<5 U	<1 U	<1 U	0.4 J	<1 U		<1 U	<1 U
PZ3	Lower Aquifer	1/28/2020	W-012820-CM-1463-PZ	<1 U	<1 U	2.2	<1 U	<1 U	<1 U	0.5 J	<10 U	3.9	0.2 J	<1 U	<1 U	<1 U	6.3	<1 U	<5 U	<1 U	<1 U	0.4 J	0.1 J		<1 U	<1 U
PZ3	Lower Aquifer	7/14/2020	W-071420-AS-1488	<1 U	<1 U	2.7	0.5 J	<1 U	<1 U	3	<10 U	3.9	0.1 J	<1 U	<1 U	<1 U	6.4	<1 U	<5 U	<1 U	<1 U	0.4 J	0.1 J		<1 U	<1 U
PZ4	Lower Aquifer	1/27/2016	W-012716-GL-1153-PZ		<1 U	2.9	<1 U	<1 U	<1 U	17	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	7.6	0.7 J	<1 U	<1 U	1 J	0.4 J	5.8		<1 U	2.2
PZ4	Lower Aquifer	7/25/2016	W-072516-AS-1201-PZ		<1 U	2.6	<1 U	<1 U	<1 U	14	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	6.5	<1 U	<1 U	<1 U	<1 U	0.3 J	5.5		<1 U	<1 U
PZ4	Lower Aquifer	1/19/2017	W-011917-GL-1246-PZ	<1 U	<1 U	3.3	<1 U	<1 U	<1 U	21	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	7.4	<1 U	<1 U	<1 U	<1 U	0.4 J	5.8		<1 U	<1 U
PZ4	Lower Aquifer	9/11/2017	W-091117-AS-1281-PZ	<1 U	<1 U	4.1	<1 U	<1 U	<1 U	22	<10 U	0.5 J	<1 U	<1 U	<1 U	<1 U	6.9	<1 U	<1 U	<1 U	<1 U	0.4 J	4.4		<1 U	<1 U
PZ4	Lower Aquifer	2/1/2018	W-020118-ST-1319-PZ	<1 U	<1 U	3.5	<1 U	<1 U	<1 U	23	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.2	<1 U	<1 U	<1 U	<1 U	0.4 J	4.1		<1 U	<1 U
PZ4	Lower Aquifer	7/30/2018	W-073018-AS-1367-PZ	<1 U	<1 U	3.2	0.3 J	<1 U	<1 U	24	<10 U	0.6 J	<1 U	<1 U	<1 U	<1 U	6.8	<1 U	<5 U	<1 U	<1 U	0.4 J	4		<1 U	<1 U
PZ4	Lower Aquifer	2/4/2019	W-020419-ST-1396-PZ	<10 U	4.4 J	3.1 J	<10 U	2.1 J	<10 U	190	<100 U	3.3 J	<10 U	<10 U	2.5 J	<10 U	7.4 J	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U		2.8 J	<10 U
PZ4	Lower Aquifer	7/26/2019	W-072619-JZ-1444-PZ	<10 U	5.6 J	<10 U	<10 U	<10 U	<10 U	170	<100 U	<10 U	<10 U	<10 U	2.5 J	<10 U	8.2 J	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U		<10 U	<10 U
PZ4	Lower Aquifer	1/30/2020	W-013020-CM-1472-PZ	<13 U	6.6 J	2.7 J	<13 U	3 J	<13 U	290	<130 U	<13 U	<13 U	<13 U	4 J	<13 U	5.3 J	<13 U	<67 U	<13 U	<13 U	<13 U	<13 U		<13 U	<13 U
PZ4	Lower Aquifer	7/16/2020	W-071620-AS-1496	<1 U	9.7	2.6	1	5	<1 U	320	<10 U	1.1	0.4 J	<1 U	3.9	<1 U	6.3	<1 U	<5 U	<1 U	<1 U	0.5 J	<1 U		1.2	<1 U
PZ4	Lower Aquifer	7/16/2020	W-071620-AS-1497	<1 U	9.3	2.6	1 J	4.7	<1 U	330	<10 U	1.1	0.4 J	<1 U	4	<1 U	6.2	<1 U	<5 U	<1 U	<1 U	0.5 J	<1 U		1.1	<1 U
PZ5	Lower Aquifer	1/27/2016	W-012716-GL-1152-PZ		<1 U	3.3	<1 U	<1 U	<1 U	11	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	7.9	<1 U	<1 U	<1 U	<1 U	0.5 J	5.8		<1 U	<1 U
PZ5	Lower Aquifer	8/4/2016	W-080416-GL-1233-PZ		<1 U	2.8	<1 U	<1 U	<1 U	14	<10 U	0.4 J	<1 U	<1 UJ	<1 U	<1 U	7.7	<1 U	<1 U	<1 U	<1 U	0.5 J	6.2		<1 U	<1 U
PZ5	Lower Aquifer	1/19/2017	W-080416-GL-1233-PZ	<1 U	<1 U	2.9	0.3 J	<1 U	<1 U	16	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	8.4	<1 U	<1 U	<1 U	<1 U	0.4 J	7		<1 U	<1 U
PZ5	Lower Aquifer	9/11/2017	W-091117-AS-1282-PZ	<1 U	<1 U	3.2	<1 U	<1 U	<1 U	20	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	7.5	<1 U	<1 U	<1 U	<1 U	0.4 J	5.5		<1 U	<1 U
PZ5	Lower Aquifer	2/1/2018	W-020118-ST-1320-PZ	<1 U	<1 U	3.1	<1 U	<1 U	<1 U	22	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	7.2	<1 U	<1 U	<1 U	<1 U	<1 U	5		<1 U	<1 U
PZ5	Lower Aquifer	7/31/2018	W-073118-AS-1369-PZ	<1 U	<1 U	2.4	0.2 J	<1 U	<1 U	14	<10 U	0.4 J	<1 U	<1 U	<1 U	<1 U	6.1	<1 U	<5 U	<1 U	<1 U	0.4 J	4.8		<1 U	<1 U
PZ5	Lower Aquifer	2/4/2019	W-020419-ST-1395-PZ	<1 U	0.2 J	1.2	<1 U	<1 U	<1 U	4.9	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	4.8	<1 U	<5 U	<1 U	<1 U	0.6 J	4		<1 U	<1 U
PZ5	Lower Aquifer	7/25/2019	W-072519-JZ-1439-PZ	<1 U	<1 U	1.3	<1 U	<1 U	<1 U	9.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.7	<1 U	<5 U	<1 U	<1 U	1.9	2.9		<1 U	<1 U
PZ5	Lower Aquifer	1/30/2020	W-013020-CM-1473-PZ	<1 U	<1 U	5	0.3 J	<1 U	<1 U	26	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	6.2	<1 U	<5 U	<1 U	<1 U	1.4	3.9		<1 U	<1 U
PZ5	Lower Aquifer	7/14/2020	W-071420-AS-1487	<1 U	0.2 J	4.3	0.5 J	<1 U	<1 U	15	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	7.1	<1 U	<5 U	<1 U	<1 U	1.1	4.2		<1 U	<1 U
PZ6	Lower Aquifer	1/27/2016	W-012716-GL-1148-PZ		<1 U	19	0.8 J	<1 U	<1 U	5.9	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	14	<1 U	<1 U	<1 U	<1 U	1	6.3		<1 U	<1 U
PZ6	Lower Aquifer	7/26/2016	W-072616-AS-1204-PZ		<1 U	18	0.9 J	<1 U	<1 U	17	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	14	<1 U	<1 U	<1 U	<1 U	1.2	6.1		<1 U	<1 U
PZ6	Lower Aquifer	1/18/2017	W-011817-GL-1241-PZ	<1 U	<1 U	22	1 J	<1 U	<1 U	4.9	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	18	<1 U	<1 U	<1 U	<1 U	1.5	5.1		<1 U	<1 U
PZ6	Lower Aquifer	9/13/2017	W-091317-AS-1288-PZ	<1 U	<1 U	22	0.8 J	<1 U	<1 U	4.5	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	16	<1 U	<1 U	<1 U	<1 U	1.3	3		<1 U	<1 U
PZ6	Lower Aquifer	2/1/2018	W-020118-ST-1321-PZ	<1 U	<1 U	20	0.5 J	<1 U	<1 U	7	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	17	<1 U	<1 U	<1 U	<1 U	1.3	2.6		<1 U	<1 U
PZ6	Lower Aquifer	7/31/2018	W-073118-AS-1370-PZ	<1 U	<1 U	14	0.5 J	<1 U	<1 U	7.5	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	13	<1 U	<5 U	<1 U	<1 U	0.6 J	2.7		<1 U	<1 U
PZ6	Lower Aquifer	2/1/2019	W-020119-CM-1391-PZ	<1 U	<1 U	6.6	0.2 J	<1 U	<1 U	5.9	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	9.1	<1 U	<5 U	<1 U	<1 U	0.4 J	0.3 J		<1 U	<1 U
PZ6	Lower Aquifer	7/25/2019	W-072519-JZ-1441-PZ	<1 U	<1 U	13	0.8 J	<1 U	<1 U	29	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	11	<1 U	<5 U	<1 U	<1 U	0.9 J	5		<1 U	<1 U
PZ6	Lower Aquifer	1/28/2020	W-012820-CM-1462-PZ	<1 U	<1 U	12	<1 U	<1 U	<1 U	1.6	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	13	<1 U	<5 U	<1 U	<1 U	0.7 J	0.1 J		<1 U	<1 U
PZ6	Lower Aquifer	7/15/2020	W-071520-AS-1494	<1 U	<1 U	13	<1 U	<1 U	<1 U	7.9	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	14	<1 U	<5 U	<1 U	<1 U	1 J	1.9		<1 U	<1 U
PZ7D	Lower Aquifer	1/27/2016	W-012716-GL-1150-PZ		<1 U	18	1 J	<1 U	<1 U	20	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	12	<1 U	<1 U	<1 U	<1 U	1.2	9.6		<1 U	<1 U
PZ7D	Lower Aquifer	7/26/2016	W-072616-AS-1202-PZ		<1 U	20	1.1	<1 U	<1 U	16	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	13	<1 U	<1 U	<1 U	<1 U	1.3	8.5		<1 U	<1 U
PZ7D	Lower Aquifer	1/18/2017	W-011817-GL-1243-PZ	<1 U	<1 U	24	1.4	<1 U	<1 U	13	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	15	<1 U	<1 U	<1 U	<1 U	1.5	11		<1 U	<1 U
PZ7D	Lower Aquifer	9/20/2017	W-092017-AS-1300-PZ	<1 U	<1 U	27	2.1	<1 U	<1 U	15	<10 U	<1 U	0.4 J	<1 U	<1 U	<1 U	18	<1 U	<1 U	<1 U	<1 U	2.4	7.6		<1 U	<1 U
PZ7D	Lower Aquifer	2/1/2018	W-020118-ST-1323-PZ	<1 U	<1 U	22	1.4	<1 U	<1 U	17	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	14	<1 U	<1 U	<1 U	<1 U	1.9	6.9		<1 U	<1 U
PZ7D	Lower Aquifer	8/1/2018	W-080118-AS-1372-PZ	<2 U	<2 U	16	1.2 J	<2 U	<2 U	17	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	9.5	<2 U	<10 U	<2 U	<2 U	1.3 J	5.4		<2 U	<2 U
PZ7D	Lower Aquifer	2/7/2019	W-020719-CM-1397-PZ	<1 U	<1 U	20	1.3	<1 U	<1 U	7.4	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	12	<1 U	<5 U	<1 U	<1 U	1.7	5.2		<1 U	<1 U
PZ7D	Lower Aquifer	7/31/2019	W-073119-AS-1458-PZ	<1 U	<1 U	16	1.1	<1 U	<1 U	8.6	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	12	<1 U	<5 U	<1 U	<1 U	1.5	4.4		<1 U	<1 U
PZ7D	Lower Aquifer	1/28/2020	W-012820-CM-1461-PZ	<1 U	<1 U	13	0.5 J	<1 U	<1 U	9.4	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	11	<1 U	<5 U	<1 U	<1 U	1.2	4.2		<1 U	<1 U
PZ7D	Lower Aquifer	7/23/2020	W-072320-ST-1508	<1 U	<1 U	11	0.7 J	<1 U	<1 U	2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	9.3	<1 U	<5 U	<1 U	<1 U	0.9 J	2		<1 U	<1 U
PZ7S	Lower Aquifer	1/27/2016	W-012716-GL-1149-PZ		<2.5 U	55	3.2	<2.5 U	<2.5 U	5.5	<25 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	28	<2.5 U	<2.5 U	<2.5 U	<2.5 U	3.4	<2.5 U		<2.5 U	<2.5 U
PZ7S	Lower Aquifer	7/26/2016	W-072616-AS-1203-PZ		<2.5 U	57	2.8	<2.5 U	<2.5 U	1.7 J	<25 U	<2.5 U	<2.5 U	1 J	<2.5 U	<2.5 U	27	<2.5 U	<2.5 U	<2.5 U	<2.5 U	3.4	<2.5 U		<2.5 U	<2.5 U
PZ7S	Lower Aquifer	1/18/2017	W-011817-GL-1244-PZ	<2 U	<2 U	59	3	<2 U	<2 U	2.2	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	30	<2 U	<2 U	<2 U	<2 U	3.4	<2 U		<2 U	<2 U
PZ7S	Lower Aquifer	9/13/2017	W-091317-AS-1289-PZ	<2 U	<2 U	48	2.3	<2 U	<2 U	4.5	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	24	<2 U	<2 U	<2 U	<2 U	3	<2 U		<2 U	<2 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
PZ7S	Lower Aquifer	2/1/2018	W-020118-ST-1322-PZ	<1.7 U	<1.7 U	40	1.6 J	<1.7 U	<1.7 U	1.8	<17 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	20	<1.7 U	<1.7 U	<1.7 U	<1.7 U	2.3	<1.7 U		<1.7 U	<1.7 U
PZ7S	Lower Aquifer	8/1/2018	W-080118-AS-1373-PZ	<2 U	<2 U	35	2.2	<2 U	<2 U	2.9	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	19	<2 U	<10 U	<2 U	<2 U	2.2	<2 U		<2 U	<2 U
PZ7S	Lower Aquifer	2/7/2019	W-020719-CM-1398-PZ	<1 U	0.2 J	45	2.6	<1 U	<1 U	13	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	23	<1 U	<5 U	<1 U	<1 U	3.4	0.6 J		0.2 J	<1 U
PZ7S	Lower Aquifer	7/30/2019	W-073019-AS-1450-PZ	<2 U	<2 U	40	2.2	<2 U	<2 U	6.2	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	21	<2 U	<10 U	<2 U	<2 U	3.2	0.5 J		<2 U	<2 U
PZ7S	Lower Aquifer	1/28/2020	W-012820-CM-1460-PZ	<1.4 U	<1.4 U	29	1 J	<1.4 U	<1.4 U	2.8	<14 U	<1.4 U	<1.4 U	<1.4 U	<1.4 U	<1.4 U	17	<1.4 U	<7.2 U	<1.4 U	<1.4 U	2.3	0.3 J		<1.4 U	<1.4 U
PZ7S	Lower Aquifer	7/24/2020	W-072420-AS-1512	<1 U	<1 U	39	2.6	<1 U	<1 U	3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	24	<1 U	<5 U	<1 U	<1 U	3.6	0.5 J		<1 U	<1 U
PZ7S	Lower Aquifer	7/24/2020	W-072420-AS-1513	<1 U	<1 U	40	2.4	<1 U	<1 U	3.1	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	25	<1 U	<5 U	<1 U	<1 U	3.7	0.4 J		<1 U	<1 U
GW108	Upper Aquifer	8/2/2016	W-080216-GL-1227-MW	<1 U	0.5 J	1.4	<1 U	<1 U	1 J	6.2	<10 U	1 J	0.5 J	<1 U	1.5	<1 U	11	<1 U	<1 U	5.9	<1 U	0.4 J	0.9 J		0.5 J	<1 U
GW108	Upper Aquifer	9/18/2017	W-091817-AS-1295-MW	0.4 J	<1 U	1.2	<1 U	<1 U	0.9 J	3.5	<10 U	0.4 J	<1 U	<1 U	1.9	<1 U	13	<1 U	<1 U	5.2	<1 U	0.5 J	0.8 J		<1 U	<1 U
GW108	Upper Aquifer	9/18/2017	W-091817-AS-1296-MW	0.4 J	<1 U	1.3	<1 U	<1 U	1 J	3.6	<10 U	0.5 J	<1 U	<1 U	1.9	<1 U	13	<1 U	<1 U	5.6	<1 U	0.4 J	0.9 J		<1 U	<1 U
GW108	Upper Aquifer	7/30/2018	W-073018-AS-1368-MW	0.8 J	0.6 J	1.7	0.3 J	<1 U	1.4	6.3	<10 U	1.7	0.7 J	<1 U	2.9	<1 U	14	<1 U	<5 U	7	<1 U	0.6 J	1.4		1.1	<1 U
GW108	Upper Aquifer	7/29/2019	W-072919-AS-1446-MW	1.1	0.4 J	0.9 J	<1 U	<1 U	<1 U	0.3 J	<10 U	<1 U	<1 U	<1 U	4.5	<1 U	0.5 J	<1 U	<5 U	10	<1 U	<1 U	0.6 J		<1 U	<1 U
GW108	Upper Aquifer	7/28/2020	W-072820-ST-1523	0.7 J	0.5 J	0.5 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	6.1	<1 U	1	<1 U	<5 U	4.5	<1 U	<1 U	0.5 J		<1 U	<1 U
GW108	Upper Aquifer	7/28/2020	W-072820-ST-1524	0.8 J	0.5 J	0.6 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	5.6	<1 U	1	<1 U	<5 U	5	<1 U	<1 U	0.5 J		<1 U	<1 U
GW109	Upper Aquifer	8/4/2016	W-080416-GL-1234-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.4	<10 U	<1 U	<1 U	<1 UJ	6.5	<1 U	0.6 J	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J		<1 U	<1 U
GW109	Upper Aquifer	9/14/2017	W-091417-AS-1290-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	0.5 J	<10 U	<1 U	<1 U	<1 U	5.4	<1 U	1.9	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW109	Upper Aquifer	8/2/2018	W-080218-AS-1378-MW	<1 U	<1 U	0.2 J	<1 U	<1 U	<1 U	0.4 J	<10 U	<1 U	<1 U	<1 U	3.6	<1 U	0.9 J	<1 U	<5 U	0.2 J	<1 U	<1 U	0.3 J		<1 U	<1 U
GW109	Upper Aquifer	7/30/2019	W-073019-AS-1452-MW	<1 U	0.5 J	0.7 J	<1 U	<1 U	<1 U	0.6 J	<10 U	0.5 J	<1 U	<1 U	27 J	<1 U	1.4	0.2 J	<5 U	1.4	1.2	<1 U	0.5 J		<1 U	0.44 J
GW109	Upper Aquifer	7/28/2020	W-072820-ST-1525	0.4 J	0.4 J	0.9 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	25	<1 U	1.9	<1 U	<5 U	1.3	<1 U	<1 U	0.5 J		<1 U	<1 U
GW50	Upper Aquifer	8/2/2016	W-080216-GL-1225-MW	<1 U	<1 U	5.6	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.8	<1 U	<1 U	0.3 J	<1 U	<1 U	0.3 J		0.6 J	<1 U
GW50	Upper Aquifer	9/18/2017	W-091817-AS-1297-MW	<1 U	<1 U	9.1	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.7	<1 U	<1 U	0.6 J	<1 U	<1 U	0.4 J		0.7 J	<1 U
GW50	Upper Aquifer	8/8/2018	W-080818-ST-1383-MW	<1 U	<1 U	14	<1 U	<1 U	0.3 J	<1 U	<10 U	0.3 J	0.3 J	<1 U	<1 U	<1 U	14	<1 U	<1 U	0.2 J	<1 U	0.7 J	<1 U		7.7	<1 U
GW50	Upper Aquifer	7/29/2019	W-072919-AS-1449-MW	<1 U	<1 U	5.8	<1 U	<1 U	<1 U	<1 U	<10 U	0.2 J	<1 U	<1 U	<1 U	<1 U	2	<1 U	<5 U	0.2 J	0.4 J	<1 U	0.3 J		0.7 J	0.32 J
GW50	Upper Aquifer	7/29/2020	W-072920-ST-1527	<1 U	<1 U	8.2	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.8	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		5.3	<1 U
GW53	Upper Aquifer	8/2/2016	W-080216-GL-1226-MW	<2 U	<2 U	0.9 J	<2 U	<2 U	<2 U	23	<20 U	<2 U	<2 U	<2 U	<2 U	<2 U	46	<2 U	<2 U	<2 U	<2 U	1.4 J	0.6 J		2.4	<2 U
GW53	Upper Aquifer	9/21/2017	W-092117-AS-1307-MW	<1.4 U	<1.4 U	0.8 J	<1.4 U	<1.4 U	<1.4 U	18	<14 U	0.9 J	<1.4 U	<1.4 U	<1.4 U	<1.4 U	41	<1.4 U	<1.4 U	<1.4 U	<1.4 U	1.4	<1.4 U		2.3	<1.4 U
GW53	Upper Aquifer	8/1/2018	W-080118-AS-1374-MW	<1 U	<1 U	1.2	<1 U	<1 U	<1 U	8.6	<10 U	0.6 J	<1 U	<1 U	<1 U	<1 U	23	<1 U	<5 U	0.5 J	<1 U	0.9 J	0.3 J		0.9 J	<1 U
GW53	Upper Aquifer	7/30/2019	W-073019-AS-1453-MW	<1 U	<1 U	1.3	<1 U	<1 U	<1 U	3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	6.3	<1 U	<5 U	1.1	<1 U	0.9 J	0.3 J		0.5 J	<1 U
GW53	Upper Aquifer	7/29/2020	W-072920-ST-1528	<1 U	<1 U	0.7 J	<1 U	<1 U	<1 U	0.6 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	2	<1 U	<5 U	0.7 J	<1 U	0.6 J	<1 U		<1 U	<1 U
GW63	Upper Aquifer	8/30/2016	W-083016-RR-1235-MW	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	63	<25 U	<2.5 U	<2.5 U	<2.5 U	2.4 J	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U		<2.5 U	<2.5 U
GW63	Upper Aquifer	9/21/2017	W-092117-AS-1308-MW	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	570	<200 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U	<20 U		<20 U	<20 U
GW63	Upper Aquifer	8/1/2018	W-080118-AS-1375-MW	<20 U	<20 U	<20 U	<20 U	<20 U	<2 U	270	<200 U	<20 U	<20 U	<20 U	3.5 J	<20 U	<20 U	<20 U	<100 U	<20 U	<20 U	<20 U	<20 U		<20 U	<20 U
GW63	Upper Aquifer	7/31/2019	W-073119-AS-1459-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	0.2 J	96	<10 U	<1 U	<1 U	<1 U	2.2	<1 U	<1 U	<1 U	<5 U	<1 U	0.3 J	<1 U	<1 U		<1 U	<1 U
GW63	Upper Aquifer	7/28/2020	W-072820-ST-1521	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	30	<10 U	<1 U	<1 U	<1 U	1 J	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW64	Upper Aquifer	8/1/2016	W-080116-JC-1220-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW64	Upper Aquifer	9/21/2017	W-092117-AS-1304-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.3	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		1.3	<1 U
GW65	Upper Aquifer	8/1/2016	W-080116-JC-1222-MW	<1 U	<1 U	0.6 J	<1 U	<1 U	<1 U	3.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	8.4	<1 U	<1 U	<1 U	<1 U	0.4 J	3.6		<1 U	<1 U
GW65	Upper Aquifer	9/21/2017	W-092117-AS-1305-MW	<1 U	<1 U	0.5 J	<1 U	<1 U	<1 U	1.2	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	9.9	<1 U	<1 U	<1 U	<1 U	0.5 J	5.4		<1 U	<1 U
GW65	Upper Aquifer	8/3/2018	W-080318-CM-1381-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	0.6 J	<10 U	<1 U	<1 U	<1 U	0.1 J	<1 U	8.1	<1 U	<5 U	0.2 J	<1 U	0.4 J	5.8		<1 U	<1 U
GW65	Upper Aquifer	8/3/2018	W-080318-CM-1382-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	0.7 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.2	<1 U	<5 U	0.2 J	<1 U	0.4 J	5.9		<1 U	<1 U
GW65	Upper Aquifer	7/31/2019	W-073119-AS-1454-MW	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	1 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.2	<1 U	<5 U	<1 U	<1 U	0.3 J	6.1		<1 U	<1 U
GW65	Upper Aquifer	7/31/2019	W-073119-AS-1455-MW	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	0.8 J	<10 U	< U	<1 U	<1 U	<1 U	<1 U	6.4	< U	<5 U	<1 U	< U	0.3 J	5.7		<1 U	< U
GW65	Upper Aquifer	7/29/2020	W-072920-ST-1530	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.5 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	7.2	<1 U	<5 U	<1 U	<1 U	<1 U	7.4		<1 U	<1 U
GW66	Upper Aquifer	8/1/2016	W-080116-JC-1221-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW66	Upper Aquifer	9/21/2017	W-092117-AS-1306-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	3.3 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW66	Upper Aquifer	8/1/2018	W-080118-AS-1376-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW66	Upper Aquifer	7/31/2019	W-073119-AS-1456-MW	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW66	Upper Aquifer	7/29/2020	W-072920-ST-1529	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		<1 U	<1 U
GW-P6	Upper Aquifer	7/28/2020	W-072820-ST-1519	<5 U	<5 U	3.8 J	<5 U	<5 U	2.9 J	40	<50 U	38	2.3 J	<5 U	<5 U	<5 U	<5 U	13	<25 U	<5 U	22	<5 U	<5 U		200	19
VW-2	Upper Aquifer	7/30/2020	W-073020-ST-1532	<1 U	0.4 J	0.7 J	<1 U	<1 U	<1 U	60	<10 U	3.3	0.4 J	<1 U	3.4	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U		23	<1 U

Table A1. Volatile Organic Compound (VOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane (Ethylene dibromide)	1,2-Dichlorobenzene	1,2-Dichloroethane	Acetone	Benzene	Chlorobenzene	Chloroethane	Chloroform (Trichloromethane)	Chloromethane (Methyl chloride)	cis-1,2-Dichloroethene	Ethylbenzene	Methylene chloride	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl acetate	Vinyl chloride	Xylenes (total)
VW-3	Upper Aquifer	7/28/2020	W-072820-ST-1520	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	2.1	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	0.7 J	<1 U	<1 U		0.8 J	<1 U
VW-4	Upper Aquifer	7/30/2020	W-073020-ST-1531	<1 U	<1 U	0.4 J	<1 U	<1 U	2.2	42	<10 U	6	1.5	<1 U	2.4	<1 U	<1 U	0.5 J	<5 U	<1 U	0.7 J	<1 U	0.6 J		33	<1 U

Table A3. Semi-Volatile Organic Compound (SVOC) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	1,4-Dioxane	Benzo(a)pyrene	Pentachlorophenol
EW1	Lower Aquifer	7/27/2020	W-072720-AS-1516	0.88		
EW4	Lower Aquifer	7/27/2020	W-072720-AS-1515	1.9		
GW108	Upper Aquifer	9/18/2017	W-091817-AS-1295-MW		<0.18 U	<0.1 U
GW108	Upper Aquifer	9/18/2017	W-091817-AS-1296-MW		<0.18 U	<0.1 U
GW108	Upper Aquifer	7/28/2020	W-072820-ST-1523	0.54		
GW108	Upper Aquifer	7/28/2020	W-072820-ST-1524	0.48		
GW109	Upper Aquifer	9/14/2017	W-091417-AS-1290-MW		<0.2 U	<0.1 U
GW50	Upper Aquifer	9/18/2017	W-091817-AS-1297-MW		<0.19 U	<0.1 U
GW50	Upper Aquifer	7/29/2020	W-072920-ST-1527	2.1		
GW53	Upper Aquifer	9/21/2017	W-092117-AS-1307-MW		<0.19 U	<0.1 U
GW63	Upper Aquifer	9/21/2017	W-092117-AS-1308-MW		<0.19 U	<0.1 U
GW64	Upper Aquifer	9/21/2017	W-092117-AS-1304-MW		<0.2 U	<0.1 U
GW65	Upper Aquifer	9/21/2017	W-092117-AS-1305-MW		<0.2 U	<0.1 U
GW66	Upper Aquifer	9/21/2017	W-092117-AS-1306-MW		1.9	<0.1 U
GW-P6	Upper Aquifer	7/28/2020	W-072820-ST-1519	2.7		
MW100	Lower Aquifer	7/24/2020	W-072420-ST-1510	1.7		
MW101	Lower Aquifer	7/22/2020	W-072220-ST-1503	1.9		
MW68	Lower Aquifer	7/27/2020	W-072720-ST-1514	3.9		
MW71	Lower Aquifer	7/22/2020	W-072220-ST-1504	0.34		
MW72	Lower Aquifer	7/21/2020	W-072120-ST-1500	0.19		
MW73	Lower Aquifer	7/22/2020	W-072220-ST-1502	0.51		
MW87	Lower Aquifer	7/23/2020	W-072320-ST-1506	1.2		
MW95	Lower Aquifer	7/23/2020	W-072320-ST-1509	1.4		
MW96	Lower Aquifer	7/21/2020	W-072120-ST-1498	<0.19 U		
MW97	Lower Aquifer	7/21/2020	W-072120-ST-1499	<0.2 U		
PZ7D	Lower Aquifer	7/23/2020	W-072320-ST-1508	1.2		
PZ7S	Lower Aquifer	7/24/2020	W-072420-AS-1512	2		
PZ7S	Lower Aquifer	7/24/2020	W-072420-AS-1513	2		

Table A7. Per- and Poly-Fluorinated Alkyl Substances (PFAS) Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	Fluorotelomer sulfonic acid (4:2)	Fluorotelomer sulfonic acid (6:2)	Fluorotelomer sulfonic acid (8:2)	N-Ethyl perfluorooctane sulfonamidoacetic acid	N-Methyl perfluorooctane sulfonamido acetic acid	Perfluorobutane sulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononane sulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (FOSA)	Perfluorooctane sulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluoropentane sulfonic acid (PFPeS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)
EW1	Lower Aquifer	7/27/2020	W-072720-AS-1516	<17 U	<17 U	<17 U	<17 U	<17 U	8.7	18	<1.7 U	<1.7 U	<1.7 U	0.7 J	9.5	24	19	<1.7 U	4.5	<1.7 U	25	21	3.2	27	<1.7 U	<1.7 U	<1.7 U
EW4	Lower Aquifer	7/27/2020	W-072720-AS-1515	<17 U	<17 U	<17 U	<17 U	<17 U	2	10	<1.7 U	<1.7 U	<1.7 U	<1.7 U	4.7	11	11	<1.7 U	2.1	<1.7 U	3.7	12	1.5 J	11	<1.7 U	<1.7 U	<1.7 U
GW108	Upper Aquifer	7/28/2020	W-072820-ST-1523	<17 U	<17 U	<17 U	<17 U	<17 U	1.9	7.6	<1.7 U	<1.7 U	<1.7 U	0.4 J	2.5	5 J	3.5	<1.7 U	1 J	<1.7 U	11	8.9	0.6 J	3.1	<1.7 U	<1.7 U	<1.7 U
GW108	Upper Aquifer	7/28/2020	W-072820-ST-1524	<17 U	<17 U	<17 U	<17 U	<17 U	1.8	7.5	<1.7 U	<1.7 U	<1.7 U	0.3 J	2.4	6.6 J	3.5	<1.7 U	0.8 J	<1.7 U	6.1	7.7	0.5 J	3.2	<1.7 U	<1.7 U	<1.7 U
GW50	Upper Aquifer	7/29/2020	W-072920-ST-1527	<18 U	<18 U	<18 U	<18 U	<18 U	4.8 J	<18 U	<1.8 U	<1.8 U	<1.8 U	0.3 J	2.2	7.6	7.8	<1.8 U	<1.8 U	0.5 J	8.6 J	9	1.6 J	2.5	<1.8 U	<1.8 U	<1.8 U
GW63	Upper Aquifer	7/28/2020	W-072820-ST-1521	<18 U	<18 U	<18 U	<18 U	<18 U	3.2	18	<1.8 U	<1.8 U	<1.8 U	0.6 J	18	14	22	<1.8 U	1.4 J	<1.8 U	28	63	1.2 J	19	<1.8 U	<1.8 U	
GW65	Upper Aquifer	7/29/2020	W-072920-ST-1530																								<1.8 U
GW-P6	Upper Aquifer	7/28/2020	W-072820-ST-1519	<17 U	2.7 J	<17 U	<17 U	<17 U	1.2 J	<1.7 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	1.4 J	<1.7 U	4.8	<1.7 U	<1.7 U	<1.7 U	<1.7 U	2.8	<1.7 U	5.1	<1.7 U	<1.7 U	<1.7 U
MW100	Lower Aquifer	7/24/2020	W-072420-ST-1510	<18 U	<18 U	<18 U	<18 U	<18 U	0.2 J	2.4	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	1.1 J	<1.8 U	<1.8 U	<1.8 U	<1.8 U	2.5	<1.8 U	1.3 J	<1.8 U	<1.8 U	<1.8 U
MW101	Lower Aquifer	7/22/2020	W-072220-ST-1503	<18 U	<18 U	<18 U	<18 U	<18 U	0.5 J	1.2 J	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	0.8 J	<1.8 U	<1.8 U	<1.8 U
MW68	Lower Aquifer	7/27/2020	W-072720-ST-1514	<18 U	<18 U	<18 U	<18 U	<18 U	10	31	<1.8 U	<1.8 U	<1.8 U	0.6 J	12	16	21	<1.8 U	3.5	<1.8 U	7.8 J	16	4.7	32	<1.8 U	<1.8 U	<1.8 U
MW71	Lower Aquifer	7/22/2020	W-072220-ST-1504	<17 U	<17 U	<17 U	<17 U	<17 U	0.6 J	4.6	<1.7 U	<1.7 U	<1.7 U	<1.7 U	0.8 J	<1.7 U	2	<1.7 U	0.4 J	<1.7 U	0.9 J	1.4 J	<1.7 U	3.3	<1.7 U	<1.7 U	<1.7 U
MW72	Lower Aquifer	7/21/2020	W-072120-ST-1500	<17 U	<17 U	<17 U	<17 U	<17 U	2.8	<5.5 U	<1.7 U	<1.7 U	<1.7 U	<1.7 U	2.2	6.3	<2.9 U	<1.7 U	1.7	<1.7 U	12	20	0.5 J	<3.2 U	<1.7 U	<1.7 U	<1.7 U
MW73	Lower Aquifer	7/22/2020	W-072220-ST-1502	<18 U	<18 U	<18 U	<18 U	<18 U	2.3	7	<1.8 U	<1.8 U	<1.8 U	<1.8 U	3.6	17	7	<1.8 U	<1.8 U	<1.8 U	<1.8 U	32	0.8 J	5.6	<1.8 U	<1.8 U	<1.8 U
MW87	Lower Aquifer	7/23/2020	W-072320-ST-1506	<18 U	<18 U	<18 U	<18 U	<18 U	1.3 J	9.4	<1.8 U	<1.8 U	<1.8 U	<1.8 U	3.4	6.9	4.9	<1.8 U	<1.8 U	<1.8 U	<1.8 U	13	1.1 J	6.5	<1.8 U	<1.8 U	<1.8 U
MW95	Lower Aquifer	7/23/2020	W-072320-ST-1509	<17 U	<17 U	<17 U	<17 U	<17 U	4.7	20	<1.7 U	<1.7 U	<1.7 U	<1.7 U	15	19	37	<1.7 U	1.8	<1.7 U	2.9	20	4.4	38	<1.7 U	<1.7 U	<1.7 U
MW96	Lower Aquifer	7/21/2020	W-072120-ST-1498	<19 U	<19 U	<19 U	<19 U	<19 U	5.7	<9.9 U	<1.9 U	<1.9 U	<1.9 U	<1.9 U	0.5 J	13	<1.9 U	<1.9 U	<1.9 U	<1.9 U	2.5	1.4 J	2.6	<3.5 U	<1.9 U	<1.9 U	<1.9 U
MW97	Lower Aquifer	7/21/2020	W-072120-ST-1499	<17 U	<17 U	<17 U	<17 U	<17 U	6.2	<6.1 U	<1.7 U	<1.7 U	<1.7 U	0.4 J	4.8	9.4	<7 U	<1.7 U	4	<1.7 U	5.3	11	0.9 J	<6.5 U	<1.7 U	<1.7 U	<1.7 U
PZ7D	Lower Aquifer	7/23/2020	W-072320-ST-1508	<18 U	<18 U	<18 U	<18 U	<18 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	0.9 J	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	<1.8 U	0.5 J	<1.8 U	<1.8 U	<1.8 U
PZ7S	Lower Aquifer	7/24/2020	W-072420-AS-1512	<170 U	<170 U	<170 U	<170 U	<170 U	4.6 J	360	<17 U	<17 U	<17 U	<17 U	9.4 J	<17 U	22	<17 U	<17 U	<17 U	6.7 J	28	<17 U	25	<17 U	<17 U	<17 U
PZ7S	Lower Aquifer	7/24/2020	W-072420-AS-1513	<180 U	<180 U	<180 U	<180 U	<180 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	<18 U	5.7 J	<18 U	<18 U	<18 U

Table A5. Metals Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	Arsenic, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Lead, Total
GW108	Upper Aquifer	9/18/2017	W-091817-AS-1295-MW	<5 U	<1 U	0.7 J	<5 U	<3 U
GW108	Upper Aquifer	9/18/2017	W-091817-AS-1296-MW	<5 U	<1 U	0.7 J	<5 U	<3 U
GW109	Upper Aquifer	9/14/2017	W-091417-AS-1290-MW	2.1 J	1.5	<2 U	1.9 J	1.8 J
GW50	Upper Aquifer	9/18/2017	W-091817-AS-1297-MW	1 J	<1 U	1.2 J	0.8 J	<3 U
GW53	Upper Aquifer	9/21/2017	W-092117-AS-1307-MW	1 J	<1 U	<2 U	0.9 J	<3 U
GW63	Upper Aquifer	9/21/2017	W-092117-AS-1308-MW	6.6	0.4 J	0.6 J	17	25
GW64	Upper Aquifer	9/21/2017	W-092117-AS-1304-MW	1.7 J	<1 U	0.5 J	1.4 J	1.5 J
GW65	Upper Aquifer	9/21/2017	W-092117-AS-1305-MW	0.9 J	<1 U	<2 U	2.1 J	1.2 J
GW66	Upper Aquifer	9/21/2017	W-092117-AS-1306-MW	110	2.9	19	99	160
MW100	Lower Aquifer	7/29/2019	W-072919-AS-1447-MW	3.4 J				
MW100	Lower Aquifer	7/24/2020	W-072420-ST-1510	3.9 J				
MW101	Lower Aquifer	7/24/2019	W-072419-JZ-1433-MW	<5 U				
MW101	Lower Aquifer	7/22/2020	W-072220-ST-1503	<5 U				
MW102	Lower Aquifer	7/20/2019	W-072019-JZ-1417-MW	<5 U				
MW103	Lower Aquifer	7/25/2019	W-072519-JZ-1438-MW	<5 U				
MW103	Lower Aquifer	7/13/2020	W-071320-AS-1485	0.8 J				
MW104	Lower Aquifer	7/26/2019	W-072619-JZ-1443-MW	<5 U				
MW104	Lower Aquifer	7/15/2020	W-071520-AS-1491	1.6 J				
MW105	Lower Aquifer	7/23/2019	W-072319-JZ-1431-MW	15				
MW105	Lower Aquifer	7/9/2020	W-070920-AS-1480	27				
MW105	Lower Aquifer	7/9/2020	W-070920-AS-1481	29				
MW106	Lower Aquifer	7/17/2019	W-071719-ST-1407-MW	17				
MW106	Lower Aquifer	6/30/2020	W-063020-AS-1462	19				
MW107	Lower Aquifer	7/29/2019	W-072919-AS-1448-MW	<5 U				
MW107	Lower Aquifer	7/16/2020	W-071620-AS-1495	<5 U				
MW68	Lower Aquifer	7/30/2019	W-073019-AS-1451-MW	1.7 J				
MW68	Lower Aquifer	7/27/2020	W-072720-ST-1514	1.2 J				
MW69	Lower Aquifer	7/21/2019	W-072119-JZ-1421-MW	<5 U				
MW69	Lower Aquifer	7/15/2020	W-071520-AS-1492	<5 U				
MW70	Lower Aquifer	7/23/2019	W-072319-JZ-1428-MW	<5 U				
MW70	Lower Aquifer	7/23/2019	W-072319-JZ-1429-MW	<5 U				
MW70	Lower Aquifer	7/15/2020	W-071520-AS-1493	<5 U				
MW71	Lower Aquifer	7/24/2019	W-072419-JZ-1435-MW	<5 U				
MW71	Lower Aquifer	7/22/2020	W-072220-ST-1504	<5 U				
MW72	Lower Aquifer	7/21/2019	W-072119-JZ-1422-MW	<5 U				
MW72	Lower Aquifer	7/21/2020	W-072120-ST-1500	0.8 J				
MW73	Lower Aquifer	7/19/2019	W-071919-JZ-1412-MW	1.4 J				
MW73	Lower Aquifer	7/22/2020	W-072220-ST-1502	<5 U				
MW74	Lower Aquifer	7/17/2019	W-071719-ST-1408-MW	<5 U				
MW74	Lower Aquifer	6/30/2020	W-063020-AS-1464	<5 U				
MW75	Lower Aquifer	7/17/2019	W-071719-ST-1409-MW	<5 U				
MW75	Lower Aquifer	6/30/2020	W-063020-AS-1463	<5 U				

Table A5. Metals Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	Arsenic, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Lead, Total
MW76	Lower Aquifer	7/20/2019	W-072019-JZ-1418-MW	2.4 J				
MW76	Lower Aquifer	6/30/2020	W-063020-AS-1465	4.8 J				
MW77	Lower Aquifer	7/22/2019	W-072219-JZ-1426-MW	<5 U				
MW77	Lower Aquifer	7/1/2020	W-070120-AS-1468	<5 U				
MW78	Lower Aquifer	7/19/2019	W-071919-JZ-1414-MW	<5 U				
MW78	Lower Aquifer	7/6/2020	W-070620-AS-1469	0.8 J				
MW79	Lower Aquifer	7/19/2019	W-071919-JZ-1413-MW	<5 U				
MW79	Lower Aquifer	7/7/2020	W-070720-AS-1474	<5 U				
MW80	Lower Aquifer	7/21/2019	W-072119-JZ-1420-MW	<5 U				
MW80	Lower Aquifer	7/6/2020	W-070620-AS-1471	<5 U				
MW81	Lower Aquifer	7/23/2019	W-072319-JZ-1427-MW	0.8 J				
MW81	Lower Aquifer	7/13/2020	W-071320-AS-1482	<5 U				
MW82	Lower Aquifer	7/22/2019	W-072219-JZ-1423-MW	<5 U				
MW82	Lower Aquifer	7/8/2020	W-070820-AS-1475	<5 U				
MW83	Lower Aquifer	7/22/2019	W-072219-JZ-1425-MW	<5 U				
MW83	Lower Aquifer	7/8/2020	W-070820-AS-1477	<5 U				
MW84	Lower Aquifer	7/22/2019	W-072219-JZ-1424-MW	<5 U				
MW84	Lower Aquifer	7/8/2020	W-070820-AS-1476	<5 U				
MW85	Lower Aquifer	7/24/2019	W-072419-JZ-1432-MW	<5 U				
MW85	Lower Aquifer	7/13/2020	W-071320-AS-1483	<5 U				
MW86	Lower Aquifer	7/24/2019	W-072419-JZ-1434-MW	5.9				
MW86	Lower Aquifer	7/9/2020	W-070920-AS-1479	4.2 J				
MW87	Lower Aquifer	7/26/2019	W-072619-JZ-1442-MW	<5 U				
MW87	Lower Aquifer	7/23/2020	W-072320-ST-1506	<5 U				
MW88	Lower Aquifer	7/16/2019	W-071619-ST-1402-MW	<5 U				
MW88	Lower Aquifer	7/6/2020	W-070620-AS-1470	28				
MW89	Lower Aquifer	7/23/2019	W-072319-JZ-1430-MW	16				
MW89	Lower Aquifer	7/13/2020	W-071320-AS-1484	120				
MW91	Lower Aquifer	7/20/2019	W-072019-JZ-1419-MW	18				
MW92	Lower Aquifer	7/18/2019	W-071819-ST-1410-MW	7.6				
MW92	Lower Aquifer	7/14/2020	W-071420-AS-1489	8.5				
MW93	Lower Aquifer	7/18/2019	W-071819-ST-1411-MW	12				
MW93	Lower Aquifer	7/1/2020	W-070120-AS-1466	17				
MW94	Lower Aquifer	7/20/2019	W-072019-JZ-1416-MW	<5 U				
MW94	Lower Aquifer	7/7/2020	W-070720-AS-1472	<5 U				
MW95	Lower Aquifer	7/26/2019	W-072619-JZ-1445-MW	0.8 J				
MW95	Lower Aquifer	7/23/2020	W-072320-ST-1509	<5 U				
MW96	Lower Aquifer	7/16/2019	W-071619-ST-1403-MW	<5 U				
MW96	Lower Aquifer	7/16/2019	W-071619-ST-1404-MW	0.8 J				
MW96	Lower Aquifer	7/21/2020	W-072120-ST-1498	<5 U				
MW97	Lower Aquifer	7/16/2019	W-071619-ST-1405-MW	<5 U				
MW97	Lower Aquifer	7/21/2020	W-072120-ST-1499	<5 U				

Table A5. Metals Results from 2016 to 2020 - All Results

WellName	Aquifer	SampleDate	SampleID	Arsenic, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Lead, Total
MW98	Lower Aquifer	7/25/2019	W-072519-JZ-1437-MW	1.1 J				
MW98	Lower Aquifer	7/14/2020	W-071420-AS-1486	1.2 J				
MW99	Lower Aquifer	7/19/2019	W-071919-JZ-1415-MW	6.4				
MW99	Lower Aquifer	7/1/2020	W-070120-AS-1467	5.9				

APPENDIX F

Pristine Virtual Site Inspection Report

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

January 22, 2021

MEMORANDUM

TO: File
Pristine Site SSID#0556
Hamilton County, Ohio

FROM: Judy Canova, Remedial Project Manager J Canova
Remedial Response Section #6
Remedial Response Branch #1
Superfund and Emergency Management Division

RE: Pristine 5 Year Review
Virtual Site Inspection Trip Report

INTRODUCTION

On December 4, 2020, a virtual site inspection was conducted at the Pristine Site (Site). Henry Cooke and Rob Robertson of GHD, Pristine's contractor, were present at the site in addition to Martha Farr, a trustee for Pristine. Microsoft TEAMs was used to broadcast the site inspection. Site inspection participants who joined via TEAMs included Scott Glum (Ohio EPA), Ron Pitzer and Peggy Dewan (Pristine Trustees) and Judy Canova (EPA RPM). Various aspects of the site were observed by all participants and selected areas of interest were photographed by Martha Farr after they were observed virtually. Electronic copies of photographs were provided to EPA after the completion of the inspection.

The virtual site inspection began at approximately 9:00 AM EST with a records check. Table 1 (see Attachment A) summarizes the documents observed to be available at the treatment building. Part of the records check includes evaluating whether there have been unanticipated/unusually high O&M Costs. Since the last 5 Year Review in 2016, there have not been any unanticipated/unusually high O&M Costs. In the past, iron bacteria and fouling have affected the performance of groundwater recovery and conveyance systems, and treatment for fouling is considered routine O&M. The pump was pulled from EW-1 and the screen was acid-cleaned, which helped improve flow to the pump. The in-situ soil vapor extraction dewatering system was also acid-cleaned to improve flow. In 2004/2005, PVC liners were added to extraction well casings in the lower aquifer extraction wells. During the 5-year period

since the previous 5-year review, EW-5 developed integrity issues as evidenced by accumulation of a significant amount of sand in the well suggesting a breach between the liner and the screen.

Scott Glum mentioned that Ohio EPA completed a state RCRA inspection at the Pristine site in August, 2020 and identified no issues.

OBSERVED SITE CONDITIONS

Various features of the site were observed including the treatment building, components of the treatment system, site fencing and gates, a subset of selected monitoring wells (GW-53, GW-63, GW-64, MW-68, MW-82**,** MW-87, MW-100, MW-101, MW-104, MW-69, and MW-70 were selected for inspection) and extraction wells EW-1 and EW-4, the former magic pit, the area on the north end of the property where a pond was filled in during the construction of the cap, the soil cap, road conditions on the site property and near the site, and nearby property use with a focus on land use changes and the area proposed by Duke Energy for installation of a high-pressure gas line. The gas line is expected to cross the Pristine force main that extends from operating extraction well EW-4 to the site. The following pictures and text summarize the findings of the virtual site inspection:

Treatment Building: The treatment building was observed on all four sides outside and inside and appears to be in good condition as shown in the pictures below:

Pristine Site 5 Year Review Virtual Site Inspection 12-4-2020. Treatment Building Condition

Treatment System Components: The following components appeared to be in good condition: motor control center, air stripper, effluent tanks and flow meter, influent tank, and electrical panel.

Pristine Site 5 Year Review Virtual Site Inspection 12-4-2020. Treatment system components. Motor control center (left), storage tank (middle), air stripper (right)

Building Contents: Used oil was stored properly in a drum in a concrete containment system. Treatment chemicals were stored properly. Dedicated tubing used in well sampling was properly stored in bags within a small storage structure inside the building. Sulfuric acid was properly stored in a tank outside the building with secondary containment.

Pristine Site 5 Year Review Virtual Site Inspection 12-4-2020. Storage unit within treatment building. Contents include dedicated and unused tubing and other equipment used for groundwater sampling.

Pristine Site 5 Year Review Virtual Site Inspection. Sulfuric acid tank with secondary containment. Treatment building area.

Site Fencing, Gates, and Signs: The gates to the site were secure and properly labeled. Fencing around the site was in good condition. Access to the site is properly controlled. The site operator is at the site six days a week, and he monitors any unexpected activity in the area.

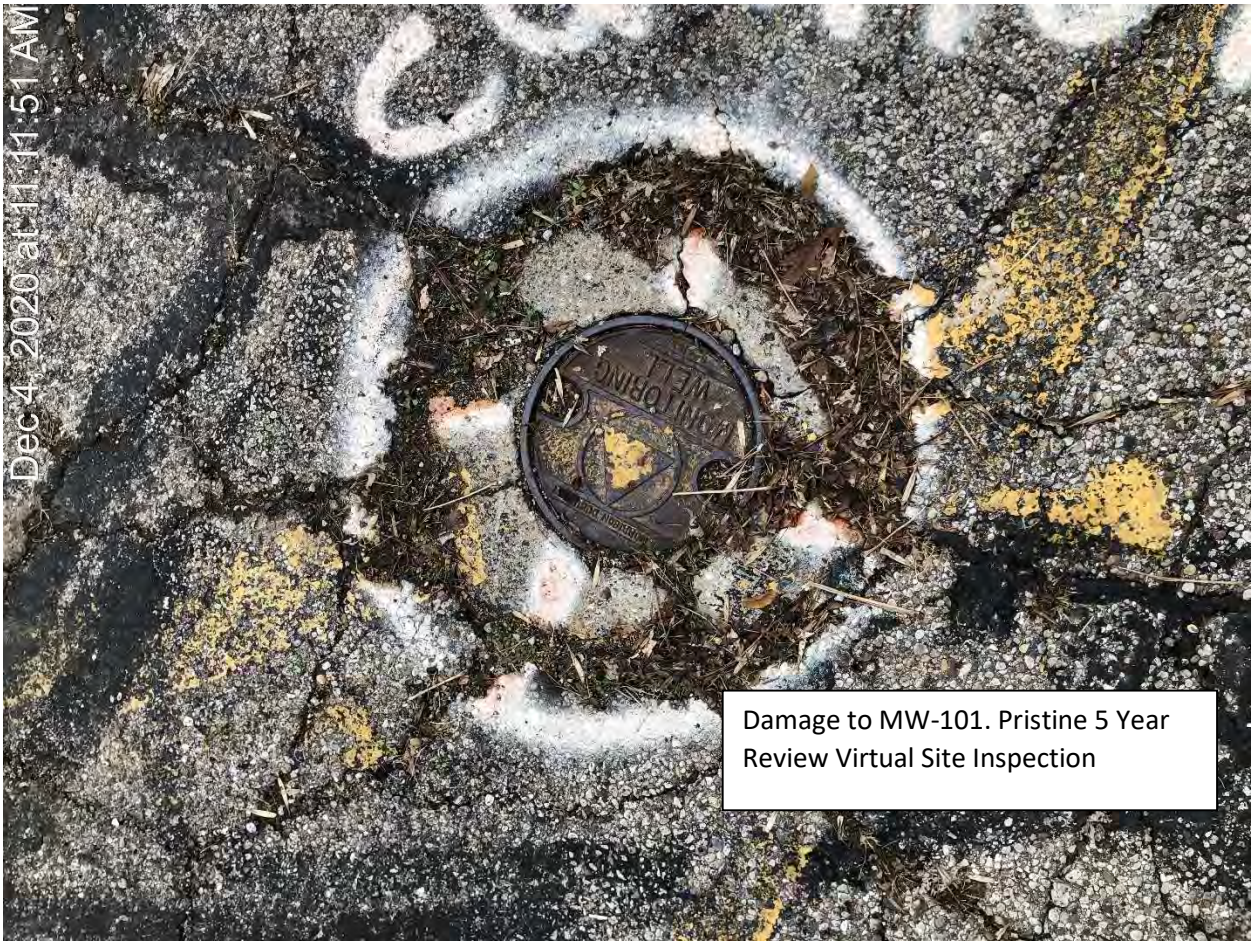
Pristine 5 Year Review Virtual Site Inspection. Fencing and signage. Center picture Municipal Sewer District CSO overflow tank north of Pristine property boundary fence.

Pristine 5 Year Review Virtual Site Inspection. Main gate to site. Road in reasonable condition.

Monitoring Wells: Upper Aquifer monitoring wells GW-64, GW-65, and Lower Aquifer monitoring well MW-82 could not be observed because of proximity to an active railroad, and the railroad owner had not been notified of the site inspection or the need to access the wells. Tire tracks in the mud were noted directly adjacent to MW-100 in a field beyond the property boundary. There may be a need to provide additional protection to this well including a more substantial cover and/or bollards. The integrity of MW-100 will need to be evaluated prior to the next sampling event. Pristine reported that GW-53 had been redeveloped recently in an attempt to improve the amount of water the well is capable of producing. MW-101 had some damage to the road nearby as a result of demolition of the adjacent school. The remaining monitoring wells checked during the site visit appeared to be in good condition. Well MW-87 is on the former Dow property which is proposed for eventual redevelopment.

Pristine 5 Year Review Virtual Site Inspection Monitoring Wells. Left: MW-87, MW-88, MW-89 Middle: MW-68, 69, 70.

Right: MW-100 showing tire tracks.



Damage to MW-101. Pristine 5 Year Review Virtual Site Inspection

Extraction Wells: EW-1 was observed to be operational at 63 psi. The wellhead, electrical, and plumbing components near the well were observed and appeared to be in good condition. EW-4, the other operational extraction well, is under a large manhole near a street. Pristine representatives were not prepared with the proper tools to remove the manhole to allow inspection of the condition of EW-4, although the controller adjacent to the well was noted.

Pristine 5 Year Review Virtual Site Inspection. Extraction wells EW-1 (left and center) and EW-4 (right)

Magic Pit: The location of the former magic pit was observed with respect to the change in elevation between the former magic pit and the Pristine site as well as the continued drop in elevation between the former magic pit and the adjacent former Cincinnati Drum Services property. A picture showing the steep drop toward the former magic pit is shown below:

Pristine 5 Year Review Virtual Site Inspection. Magic Pit area. SVE and dewatering wells (left) in vicinity of Magic Pit. Right picture shows slope between treatment building (east of Magic Pit) at Pristine site and the Magic Pit. Ground elevation drops to the west of the treatment building.

Former Pond (Northern property): There was no standing water and no evidence that a pond was once present on the northern side of the property.

Soil Cap: The soil cap was nicely vegetated over 95% of the area. Roads near the cap were properly maintained. No significant cracks or ponding of water were noted at or on the cap. No significant settlement or erosion of the cap was noted during the inspection.

Pristine 5 Year Review Virtual Site Inspection. Cap integrity.

Roads on Site Property: All roads on the property were in reasonable condition. Some of the roads in the vicinity of the site were in various stages of disrepair. A new road was constructed by the City of Reading on the Dow property between Dow and Cincinnati Drum Service property.

PROPERTY USE CHANGES NEAR THE SITE

In the immediate vicinity of the Pristine property, the property use is commercial and industrial. The plume extends in the Lower Aquifer to the southwest into a residential area and near a former school building. The school has been demolished and the property has been razed. A force main conveys water from EW-4 to the treatment building. The force main crosses the road where the high-pressure gas line will be constructed. The gas line, as it is currently proposed, will cross under the force main in 3 locations. Cincinnati Drum Service has tenants including a pallet business, trucking company, and a paving company, and there are vehicles parked at the facility. The property continues to be owned by the Long family. The Cincinnati Port Authority plans for Dow (aka Rohm and Haas, Morton) property to develop on the south end first and move north towards Pristine at some point in the future.

The Pristine 5 Year Review virtual site inspection was concluded at approximately 11:45 am EST on December 4, 2020.

INTERVIEWS

In the days following the virtual site inspection, TEAMS video interviews were conducted with Scott Glum (December 14); Ron Pitzer, Pristine Trustee (December 17); Pristine O&M Site Manager Henry Cooke (December 17); and Rob Robertson, Pristine treatment system operator (December 17). Patrick Ross, the City of Reading Health and Safety Officer, was also contacted to identify any concerns pertaining to the Pristine Site. Notes from the interviews are included in Attachment B.

cc: Scott Glum, Ohio EPA
Henry Cooke, GHD
Peggy Dewan, Pristine Trustee
Marth Farr, Pristine Trustee
Ron Pitzer, Pristine Trustee
Rob Robertson, GHD

ATTACHMENTS

Pristine 5 Year Review Virtual Site Inspection

ATTACHMENT A

Table 1: Summary of On-Site Records Inspection, Pristine Site 5 Year Review		
Document Name	Format of Document	Last Update
Operation and Maintenance Manual	Hard Copy	2006
Maintenance Log	Hard Copy	Updated every Saturday
As-built drawings	Hard Copy	NA
Health and Safety Plan	Hard Copy	May 4, 2020
OSHA HAZWOPER Training Records	Hard Copies	RCRA 8-5-2021 DOT 6-10-2021
Discharge Permit	Hard Copy	10-9-2020
Discharge Monitoring Reports	Electronic Copies	10-2020
Daily Access/Security Log	Hard Copy	Last signed 12-4-2020
O&M Cost Records/Annual Costs	Electronic Copy	Not in building; provided by trustees to EPA semi-annually
Groundwater Monitoring Records	Hard Copy	2019 Annual Report in building

ATTACHMENT B: Interview Notes

PRISTINE 5-Year Review Interview
Scott Glum, Ohio EPA
December 14, 2020

Thoughts on Pristine Site: A lot of progress has been made in terms of the pump and treat; comparing plume maps from beginning of extraction and today. There are definite signs of progress. Increased pumping at EW-4 appears to be controlling plume migration. We will be able to evaluate this as monitoring goes on. However, soil remedy in question. Soil remedy may be protective for industrial use. However, looking at EW-1 and downgradient wells, contamination may still exist in soil that poses a leaching threat to ground water. It appears that the contamination source has not been controlled/eliminated, given that concentrations of 1,2-DCA and other VOCs persist in ground water even though pumping has been ongoing since 1997. Don't know if it is subaqueous or vadose; seems source area is limiting the effectiveness of the remedy.

PRPs wanted MNA because of the limited amount of VOC lbs. recovery in extraction wells. However, question remains why concentrations did not decrease beyond a certain point. It looks like a source remains and needs to be assessed and addressed. It seems like Pristine is open to looking for a source that poses a leaching threat to groundwater.

Not aware of any potable use wells in the vicinity of Pristine other than Wyoming wells on the other side of the Mill Creek valley; Reading closed since 1994. There may be industrial non-potable wells to the south of the site (Sawbrook Industries?). Mill Creek valley aquifer was historically overstressed by industrial use pumping in the 1940s and 1950s; non-potable use wellfield owned by Southwest Ohio Water Company near Great Miami River used by GE. Half a dozen major industries in Mill Creek Valley rely on this water instead of Mill Creek groundwater. As a result, water table elevation has increased by about 100' in Mill Creek Valley aquifer since 1950s. GE is pumping perched and upper and lower aquifer groundwater at about 150 gpm to contain their plume. To Scott's knowledge, GE has not delineated or addressed the plume beyond their facility boundary.

Pristine has environmental covenant on site to restrict wells and water use. Hamilton County health department has jurisdiction over private wells; must obtain a permit to install a well. They are aware of the Mill Creek Valley aquifer problem. Greater Cincinnati Water Works provides water to most communities including Reading. Wyoming well field is still active. Lockland closed their wells in Lockland area and relocated them further north in Mill Creek Valley to Sharonville. Sawbrook Industries to south of Pristine may have industrial water supply well, previously evaluated by USGS. They are downgradient of the plume as defined during the RI. Don't know if they are still pumping. Public water supplied to many communities in the area since 1930's. May want to contact Hamilton County Health Dept. Will provide name and contact information.

Sampling for PFAS and 1,4-D at Pristine has been very limited. Most of 1,4-D so far is below Ohio's unrestricted potable use standard of 6.7 ug/l (OEPA Voluntary Action Program health-based number

10^{-5}). Recommend additional round of sampling to confirm. No concern that site is a major source of 1,4-D. Same issue on PFAS/PFOA. Ohio PFAS action plan mirrors EPA's PFOA+PFAS 70 ng/l. Goal/plan was for OEPA to sample every water supply (>1000) by end of 2020.

Hi pressure gas line issue – testimony from Ohio EPA as the line is close to Pristine. As-built locations of buried force-mains along West Street in Reading provided to Duke Energy. Potential to damage EW-4 and EW-3 force main.

Regional contamination issue; was clear when site was pumping at 400-450 gpm. It did look like regional contamination from GE was moving towards the site. In the early 2000s, TCE, cis-1,2-DCE, and vinyl chloride had increasing trends at some Pristine monitoring wells that did not appear to be attributable to Pristine. To control the GE plume and allow GE to address their plume, it was requested for Pristine to decrease their pumping rates. In the past 5-10 years GE began interim measures to control their plume; they are not pumping beyond their boundary and are containing their plume. The off-site portion of their plume has been cut-off. Not sure if Pristine still has an impact from GE. Some wells to north and west on the western side of Mill Creek without 1,2-DCA that have TCE may have the TCE source from GE. Site dynamics have changed with reduced pumping rate at Pristine.

Hopefully remedy performance would improve by controlling, eliminating, or treating the source on Pristine property. No current human exposure to the plume at present.

PRISTINE 5-Year Review Interview
Ron Pitzer, Trustee
December 17, 2020

Trustees have been sharing thoughts in video conferences with EPA over the past six months.

Relationship with EPA – since the time Ron has been involved (and before), the Trustees and EPA have had a good relationship. Appreciate the efforts to return to a positive working relationship. Appreciate Jennifer and Tim's participation in previous meetings.

Made some good improvements but need to be on same track with how SSPA is being used. Feel their lead (PRP) has been reestablished. Want to continue agreeing on what needs to be done and how it should be done. System broke down and Ron feels we are returning to the way it should be.

Trustees are encouraged with how things are going with GHD and SSPA having conversations apart from EPA/Trustees. Timeline they have worked out looks favorable.

Thoughts on the remedy: A lot of progress has been made over the past 40 years considering the appearance of the site in the 80s. Ron was a process engineer and ran an incineration operation for waste from Pristine 40 years ago when the site was closed. Rob Robertson keeps it well maintained. Need to consider property use in path to closure. A lot of formerly active facilities around Pristine are no longer operational.

Still looking for a reasonable path to closure using good field data.

Think MNA might have a place long-term in a path to closure. Might be a logical approach. Not ready to dismiss it. Off-site plume data doesn't look that bad except for a few spots.

Pump and treat system is working as designed. EW-1 was "super cleaned" and flow rates were increased by 10 gpm; seems to have helped. Not sure it was biofouling. Looks like the system is doing what it is designed to do. Rob Robertson is doing a good job. Not concerned about the treatment system hardware as it can be easily maintained. The main concern is with the control system which is 20+ years old. Electronics are not readily available for existing system. Replacing the control system is a financial concern, not a performance issue. Believe Rob can monitor remotely but must go to site to fix it.

Have not done anything regarding Urban Setting Designation. Talked with the Port Authority. Looked into it. More efficient use of time is what is currently happening to move project forward.

Thoughts on Duke Energy's gas line – Made sure that Duke is aware of the Pristine underground pipes and control cables and coordinate with Rob and Henry. Will take preemptive measures when they dig; will shut EW-4 off when they are digging around it to control a water release in case Duke breaks one of the Pristine pipes. More concerned about the control cables being damaged as the entire cable from the plant to the extraction wells would have to be replaced if damaged.

Other activities around the Pristine site include the City widening Mill Creek for flood control west of the Morton Site. Judy requested Ron send location of this feature on a map. Pristine monitored the area while they were doing their work to confirm nothing was damaged.

Another project that Pristine monitored was the installation of a new stormwater storage tank by the MSD north of the site. The construction of the tank did not involve any Pristine systems but we monitored the work anyway.

Formica (north of site) sold a small portion of their property to the Port. Really not that close to Pristine. North American headquarters. Manufacturing and research ongoing on Formica property.

No other activities in site vicinity.

PRISTINE 5-Year Review Interview
Henry Cooke, Site Manager
December 17, 2020

Henry has been involved since 1991; knows the history well. Started pumping 23 years ago, 150 gpm system including upper aquifer and three lower aquifer extraction wells. In 1998, turned on 300 gpm system. Henry assembles annual report; tracking pounds of VOCs removed; first five years quite a bit was removed. Total pounds removed per year is currently less than 30 lbs; treating a lot of water and removing very little VOCs. Consistently running system at 98% on-line or above based on the aeration transfer pump. Perform a lot of maintenance on mechanical parts. Control system is pretty dated, the PLC, Allen-Bradley purchased in 1996. Has a number of cards in it that may fail; must have PLC to run the system. The PLC communicates with a computer with an earlier version of Windows (Windows 7 with a 32 bit processor). Computer runs 24/7 and has failed a couple of times; hard to replace. May likely need replace PLC; $300,000-$400,000 expense. May eventually be an issue. The rest of the system, pumps, level controls, etc. are easy to replace. PLC operating life is typically approximately20 years. Have to modify software when pumping rates are changed.

Treatment system is a mixture of both components of 150 gpm and 300 gpm system. Rob does a good job maintaining system.

Feel the remediation system is addressing the plume although efficiency is low; treating high volume of water.

ISVE pumping system had calcium built up in lines which reduced flow. Did some acid treatment in a loop around the lines and dissolved the buildup within the ISVE lines.

Every year, remove pumps and scrub screens of extraction wells; decided to use acid treatment at EW-1. EW-1 went from 39 gpm to 50 gpm and is now at maximum capacity. Rob checks depth to water in EW-1 to confirm it is not dropping too much. Currently 46 gpm. Aeration tank runs at 100 gpm. Did not do acid treatment of EW-4. April/May is when shutdown occurred for two weeks.

For its age, plant runs well.

Dow site looks abandoned. CDS site has various tenants that seem to come and go; paving firms, parking taxis. North of the site Reading MSD operates a treatment system added a 1.2 million gallon holding tank to manage combined sewer overflow.

Grain silos are still present but do not appear to be used. Someone is storing equipment there.

Construction of the Duke gas line - exact location of line still needs to be finalized. Pristine has a number of wells that could be impacted. GW-64, 65, 66 Upper Aquifer; MW-82 Lower Aquifer all located east of RR tracks opposite of treatment plant may be impacted by construction of gas line. Gas line will cross over Pristine force mains in 3 locations on West Street. Will have to shut down EW-4 while gas line is being constructed. Will probably be putting gas line under the force main. It is difficult to repair damaged control cables that control operation of the off-site extraction wells; most likely if they were damaged the cable would have to be replaced all the way from plant to extraction wells.

GW-108 VOC levels were in ppm range in 2008; very low VOCs recovered presently. Interesting to see if VOC concentrations rebound if you shut the pumping off.

City of Reading and Mill Creek Conservancy cut Mill Creek Embankment towards the east and made a place for it to overflow during storm events. Not a pond. Located to the west of the former Dow property.

PRISTINE 5-Year Review Interview
Rob Robertson, Site Operator
December 17, 2020

Everything at the site is working good based on water quality analysis. System is getting older. Everybody wants costs to go down. After a system gets old, cost goes up because things wear out such as pumps. Some parts to repair the system are no longer available and sometimes equipment has to be replaced completely. Just about every pump has been rebuilt. Communications system between PLC and computer difficult to repair as system is old. Right now, the PLC is supported by manufacturer and will be for the next couple of years. Communication card runs 5,000 -6,000 dollars. Perform a lot of preventative maintenance.

PLC wiring is very complex.

In general system is running well.

Annually they bring out a crane to remove pumps from extraction wells; Rob checks the pumps and lines. Right now pumps are in decent shape based on his visual inspection. Biggest wear on pump is shut on and shut off. EW-1 is now being pumped from the bottom and pump does not shut off; before it was running a little hot. EW-4 shuts off only a few minutes at a time per day. Put liners on pipes inside wells because of iron bacteria.

The Port Authority bought property next door (Morton) but nothing has happened since then; may be because of the virus. Pallet company and trucking company and asphalt company at Cincinnati Drum Site. North area has major construction at MSD plant; many trucks and vehicles moving dirt.

One school in the area has been demolished and razed, and another school built in a different location.

Underground force mains have been marked by utility locator in preparation for Duke Energy Gas line. Have drawings and photographs with laser lines.

Current system capable of 165 gpm; currently operating at 100 gpm.

PRISTINE Five-Year Review Interview
Patrick Ross, Reading City Manager

12/23/2020

Has been working 11 years for City of Reading as the city manager. Meets yearly with Henry Cooke (GHD) and Martha Farr (Trustee) for updates. Was not around when site became a Superfund site. Do not anticipate development of site but would like to see Pristine used for parking or greenspace. To south of Pristine site, bigger parcel of 26 acres (Dow site) purchased by Port Authority. Port Authority is working with a developer to bring revenue to city. Probably a couple of years before redevelopment will occur, most likely will be manufacturing. Would be nice to have Superfund designation removed; understand this is difficult. Understand no building can be done at the Pristine site but would like it to be tied into redevelopment such as parking.

Want groundwater, soil, and soil vapor to be safe for use as a parking lot. Site is gated so it seems secure and out of the way so not a lot of unwanted guests. Reading water treatment plant was torn down, so not feasible to return to well field as source of drinking water.

Duke energy pipeline not going through site but planned adjacent to Pristine and crossing some of the force mains; Patrick brought this up to EPA. Reading is opposed to the location. Duke's due diligence did not mention Superfund site within 100' of pipleline. Reading also brought this to the attention of GHD. This route was one of two proposed. Feel it was an issue of income and property ownership.

Fire chief has no concerns regarding Pristine from a health perspective. Know the site is adequately monitored; Reading has good communication with GHD. Reading performed a floodplain bench project near Mill Creek to keep water from overflowing bank; removed about 10,000 cubic yards.